FORM EQP 5111 ATTACHMENT TEMPLATE B4
ENVIRONMENTAL ASSESSMENT

This document is an attachment to the Michigan Department of Environmental Quality's (DEQ) *Instructions for Completing Form EQP 5111, Operating License Application Form for Hazardous Waste Treatment, Storage, and Disposal Facilities.* See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) §324.11118(3) and R 299.9504(1)(e) and R 299.9504(1)(b) establish requirements for conducting environmental assessments at hazardous waste management facilities. Before receiving an operating license, owners and operators of hazardous waste treatment, storage, or disposal facilities must evaluate the (proposed) facility's impact on air, water, or other natural resources of the state. The evaluation must also include a failure mode assessment. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for an environmental assessment for hazardous waste management units at the Wayne Disposal, Inc, facility.

🕮 Guidance for this template can be found in the DEQ's document titled "Contents of the Environmental Assessment."

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INTRODUCTION

This environmental assessment for Wayne Disposal, Inc. describes current conditions, environmental impacts, and applicable exposure information for landfills and surface impoundments. The goals of the environmental assessment are to describe and discuss (1) the probable impact of the facility on natural resources, human life, and all environmental elements that affect these values; (2) probable unavoidable adverse effects of the facility; (3) alternatives for accomplishing the same objective; and (4) possible modifications that would minimize adverse effects.

☞ Include in this section a description of the need for and objectives of the proposed or existing facility.

The Environmental Assessment Report, hereafter referred to as the "Report", was completed for the 2011 license application that included a lateral expansion onto undeveloped property and expanded the hazardous waste boundary. This current license renewal application only includes the previously permitted hazardous waste management area. Further, there have been no changes to the properties directly surrounding the landfill in terms of land use or isolation distances that would warrant making changes to the assessment. This template is annotated to aid the reviewer in locating the required elements as listed above.

B4.A CURRENT CONDITIONS

B4.A.1 Facility Description

☞ *This section should describe the facility, wastes managed, and location. Note that "facility," as used in this template, is the hazardous waste management unit that is the subject of this licensing action.*

See Section 1.2 of the Report.

B4.A.2 Description of Existing Environmental Conditions

A description of existing environmental conditions at the facility and any surrounding areas that may be affected by the facility is included in this section. Detailed information that is provided in other attachment templates is not repeated here; however, references to appropriate attachment templates are provided. Maps, photographs, and other relevant information that are

not included in other templates are included in this section. Important ecological relationships, functions, and interdependence of physical environmental elements and social and economic elements are discussed. Factual information from publications, reports, or personal communications is documented, with sources cited.

See Section 2.0 of the Report

B4.A.2(a) Climate

☞ *Describe meteorological data in this section, including average rainfall and temperature. Describe seasonal variations in meteorological conditions and any weather problems unique to the area. "Area" refers to all of the area surrounding the facility that will be potentially affected by the facility.*

See Section 2.1 of the Report

B4.A.2(b) Topography

☞ *Provide a description and map of land relief and slope, streams, lakes, roads, cities, and other relevant topographic features. The map should be large enough to include all areas surrounding the facility that may be potentially affected by the facility.*

See Section 2.3 of the Report

B4.A.2(c) Geology

☞ *Describe bedrock and surficial features of the area. Describe existing or potential mineral extraction and oil and gas exploration and production. If a hydrogeologic report has been included as Template B3, Hydrogeological Report, references to appropriate sections of Template B3, Hydrogeological Report, should be included here.*

See Section 2.4 of the Report

B4.A.2(d) Soils

☞ *Describe common soil series in the area, including suitability for various land uses. If possible, provide a soil type map that shows facility boundaries. Again, include a reference to Template B3, Hydrogeological Report, if appropriate.*

See Section 2.5 of the Report

B4.A.2(e) Hydrology

☞ *Describe groundwater quality, quantity, and flow direction in the area. Describe surface water characteristics, runoff patterns, flows, and seasonal variations. Describe any existing or potential problems with surface or groundwater. Note that the descriptions should be limited to hydrological features that will be potentially affected by the facility. Reference other templates, such as Template B3, Hydrogeological Report, as appropriate.*

See Section 2.6 of the Report

B4.A.2(f) Land Use and Zoning

☞ *Describe current and historic land use, existing or proposed zoning regulations, and ownership patterns in and around the area.*

See Section 2.7 and Figures 6 & 7 of the Report

B4.A.2(g) Historical or Archaeological Resources

☞ *Describe any historical or archaeological resources in the area*

See Section 2.8 of the Report

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B4.A.2(h) Social Environment

The social environment, in terms of demographics and infrastructure of the area, is discussed in the following two subsections.

See Section 2.9 and Appendix C of the Report

B4.A.2(h)(i) Demographics

☞ *Describe population characteristics of the area that may be impacted by the facility. Include employment statistics, age, ethnicity, types of employment, and major employers in the area surrounding the facility.*

See Section 2.9.1 and Appendix C of the Report

B4.A.2(h)(ii) Infrastructure

☞ *Describe existing public utilities, schools, law enforcement, transportation, sewage disposal, and solid waste disposal facilities at and near the facility.*

See Section 2.9.2 and Appendix C of the Report

B4.A.2(i) Transportation

☞ Describe existing on-site and off-site transportation facilities. "Off-site transportation facilities" refer to highways, railroads, or rail yards that will be used to transport hazardous waste either to or from the facility.

See Section 2.9.2.3 of the Report

B4.A.2(j) Air Quality

☞ *Describe existing ambient air quality and any potential or actual sources of air pollution in the area surrounding the facility.*

See Section 2.10 of the Report

B4.A.2(k) Noise

☞ *Describe current noise levels in the area surrounding the facility and identify sources of noise.*

See Section 2.11 of the Report

B4.A.2(l) Appearance and Aesthetics

☞ *Describe diversity of vegetation, visually pleasing landscapes or views, and unique natural or man-made features of the facility.*

See Section 2.12 of the Report

B4.A.2(m) Terrestrial Ecosystem

The characteristics of the terrestrial ecosystem, in terms of flora, fauna, rare or endangered species, and critical habitat are described in the following subsections.

See Section 2.13 of the Report

B4.A.2(m)(i) Flora

☞ *Describe vegetation characteristics, species, density, age, and size. Provide a descriptive map, if possible.*

See Section 2.13 of the Report

B4.A.2(m)(ii) Fauna

☞ *Describe wildlife species and population densities in the area surrounding the facility.*

See Section 2.13 of the Report

B4.A.2(m)(iii) Rare or Endangered Species

☞ *Describe any rare or endangered plant or animal species in the area surrounding the facility.*

See Section 2.13 of the Report

B4.A.2(m)(iv) Critical Habitat

☞ *Describe any habitat critical to the survival of local species.*

See Section 2.13 of the Report

B4.A.2(n) Aquatic Ecosystem

The characteristics of the aquatic ecosystem, in terms of flora, fauna, rare or endangered species, and critical habitat are described in the following subsections.

See Section 2.14 of the Report

B4.A.2(n)(i) Flora

☞ *Describe quantities and species of aquatic vegetation in the area surrounding the facility.*

See Section 2.14 of the Report

B4.A.2(n)(ii) Fauna

☞ *Describe aquatic animal species, populations, and available aquatic habitat in the area surrounding the facility.*

See Section 2.14 of the Report

B4.A.2(n)(iii) Rare or Endangered Species

☞ *Describe any rare or endangered aquatic species in the area surrounding the facility.*

See Section 2.14 of the Report

B4.A.2(n)(iv) Critical Habitat

☞ Describe any habitat that is critical to the survival of aquatic species in the area surrounding the facility.

See Section 2.14 of the Report

B4.B ENVIRONMENTAL IMPACTS OF THE FACILITY

☞ *For each hazardous waste management unit, describe how each of the items in Section B4.A.2 will be affected by normal operations and during failure mode. "Failure mode" is defined as a departure from planned or expected operations. Describe failures that can occur at each unit, including consequences of failures, if any. Examples of consequences of failures are: releases of hazardous waste to the environment, injury or death to nearby people, contamination of drinking water supplies, etc.*

Subsections of Section B4.A.2 describe various environmental conditions at and around the facility before construction and operation in the case of a new, altered, enlarged, or expanded facility. For an existing facility, the subsections describe environmental conditions existing before the current license action. The purpose of Section B4.B is to describe actual and potential effects, if any, of the proposed hazardous waste management facility or license action on the area impacted or potentially impacted by the facility. In other words, Section B4.B should describe how construction, operation, or continued operation of the facility may impact or change the environment of the area surrounding the facility.

For each hazardous waste management unit at the facility, the template containing its detailed description should be referenced, rather than repeating unit descriptions in this template.

See Section 4.0 of the Report

B4.C EXPOSURE INFORMATION REPORT FOR LANDFILLS AND SURFACE IMPOUNDMENTS

☞ *For landfills and surface impoundments only, include an Exposure Information Report (EIR). The EIR should include the following information: general, pathway-specific, transportation, management practices, known releases, and human exposure potential. Detailed guidance is included in "Contents of the Environmental Assessment." Information that is included in other sections needs not be repeated here; however, reference the appropriate section(s).*

See Section 5.0 of the Report

General information should include the following:

1. *Available health or risk assessment information,*
2. *Zoning and land use maps,*
3. *Recent aerial photographs,*
4. *Additional waste analyses not already submitted in the application,*
5. *Annual volume and amount of wastes received, and*
6. *A list of agencies that inspect and report on the facility, including compliance reports.*

The following potential exposure pathways must be evaluated:

1. *Groundwater,*
2. *Surface water,*
3. *Air,*
4. *Subsurface gas, and*
5. *Soil.*

Transportation information should include the following:

1. *Types of transportation vehicles and containers,*
2. *Normal transportation routes, and*
3. *Spill response and cleanup procedures.*

Management practices information should include worker information related to operation of the unit on:

1. *Injuries,*
2. *Accidents, and*
3. *Illnesses.*

Known release information that has not been previously submitted in the application should include:

1. *Evidence identifying the release,*
2. *Pathway and extent of migration,*
3. *Corrective action taken and an evaluation of the effectiveness of the action, and*
4. *The extent and severity of any known public exposures.*

The location of the unit should be evaluated for its potential to cause human exposure by way of the following pathways:

1. *Groundwater,*
2. *Surface water,*
3. *Air,*
4. *Subsurface gas,*
5. *Soil,*
6. *Transportation, and*
7. *Worker management practices.*

B4.D EVALUATION OF ALTERNATE HAZARDOUS WASTE MANAGEMENT TECHNOLOGIES

☞ *The purpose of this subsection is to show that construction or operation of the proposed facility is the most practical and economically viable hazardous waste management method that will protect public health and the environment. Evaluate alternative hazard waste management methods, including both positive and negative impacts on the environment of the area surrounding the facility. Discuss why the proposed method was selected. Describe disadvantages of alternatives, and describe how selected proposal is interrelated with other planned or existing community projects.*

See Section 6.0 of the Report

Supplemental Environmental Assessment Information

The following report contains updated information regarding the Environmental Assessment of conditions at and around the WDI landfill (the Site). The last comprehensive update to the Environmental Assessment Report was completed in 2011 as part of a hazardous waste license application. The 2011 Environmental Assessment (EA) Report was prepared by NTH Consultants, Ltd. The 2011 EA Report was also submitted with WDI's license application in 2021. WDI received a technical notice of deficiency (TNOD) regarding this 2021 license application. The supplemental information presented herein addresses the relevant comments in the TNOD, which are included along with the updated information. The numbered points that follow correspond with the numbered points from the TNOD. WDI's responses to each of the numbered comments are provided in blue text below.

74. Include discussion on reasonably foreseeable releases from both operations and accidents at the hazardous waste units, including transportation to and from the unit, potential human exposures, and potential magnitude and nature of human exposure.

See Attachment A.

75. Provide a failure mode assessment, including an analysis of the major methods by which safe handling of hazardous wastes may fail such as transportation accidents, spills, fire, etc., and how to minimize the occurrence and impacts of those failures. {R 299.9504(1)(e)}

See Attachment A of this SEAI for a list of potential failure modes, potential impacts of such failure modes, as well as programs and systems in place to minimize the occurrence or impacts of these failure modes.

77. Section 1.0, Introduction: The four goals of the EA Report provided in this section are not entirely consistent with the EA requirements in Rule 504(1)(e) which specifies "The owner or operator of a facility that stores, treats, or disposes of hazardous waste in a surface impoundment or a landfill shall include, in the environmental assessment, information that is reasonably ascertainable by the owner or operator on the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the unit. At a minimum, the information shall address all of the following subjects: (i) Reasonably foreseeable potential releases from both normal operations and accidents at the unit, including releases associated with transportation to or from the unit; (ii) The potential pathways of human exposure to hazardous waste or constituents resulting from the releases described in paragraph (i) of this subdivision; and (iii) The potential magnitude and nature of the human exposure resulting from the releases described in paragraph (i) of this subdivision". Additional comments regarding specific elements that need to be updated are provided below.

See Attachment A of this SEAI for a list of potential for exposure to the public from both normal operations and accidents as well as programs and systems in place to minimize these potential impacts.

78. Section 1.2, Facility Description: The EA must be revised to provide an update on the facility description which has changed significantly from the conditions described in the February 2011 Report.

Since the 2011 EA, the changes at the facility are primarily related to the development of the woodlot, the construction and operation of Cell G, and the construction of "piggyback cells" F1, F3, and F3 on top of Master Cell IV. These new cells were proposed with the License Application that included the 2011 EA. Active filling is occurring in Cells F1, F2, and F3. Cell G is not filled to grade but is not currently accepting waste and is partially covered by exposed geomembrane cover (EGC). In addition, surface water conveyance ditches have been changed due to the runoff from portions of the constructed cells that have been interim closed with an EGC. In addition, the north sedimentation basin has been expanded with an overflow basin to increase capacity. All these changes are described in the engineering reports and environmental monitoring programs submitted as other attachments to this license application.

79. Section 2.1, Climate: The EA must be revised to provide an update including the weather data from 2011 to current. Also, it should be noted the link provided to the NOAA website at the Detroit Metropolitan Website is not current and no longer works.

Attachment B contains updated climate and weather data collected from the Station at Willow Run Airport located north of and adjacent to the WDI facility. The amount of precipitation in both a 25 year and a 100 year, 24-hour storm from Detroit Metro Airport is also in Attachment B. Over the period from 1991 to 2020, the average rainfall at the site is 30.19 inches per year and the mean annual temperature is 51.4^{o}F. Compared to the 2011 EA, the mean annual temperature is about 3^{o}F higher, and rainfall is nearly the same. The mean number of days above 90^{o}F has doubled and the mean number of days with a minimum temperature below 32^{o}F has fallen by at least eight days per year.

80. Section 2.6, Hydrology: The EA must be revised to provide an update on current hydrological conditions and drainage at the facility which has changed significantly from the conditions described in the February 2011 Report.

A surface water drainage map showing current drainage directions is included on Figure 1. Changes in the drainage patterns resulting from continued landfill development have resulted in more stormwater runoff being routed to the North Sedimentation Basin (NSB), which now has an auxiliary basin to manage increased volume. Stormwater collected in the NSB is still pumped into a ditch that transmits the water to the South Sedimentation Basin (SSB) when there is sufficient capacity in the SSB. From the SSB, the stormwater is filtered and then treated with granular activated carbon before discharge to Quirk Drain in accordance with an NPDES permit. Another change to the hydrology resulted from the development of the woodlot property. Prior to development, the woodlot was a recharge zone for the groundwater in the Surficial

Sand Unit (SSU). After development of the woodlot, the recharge zone no longer existed in that area and the flow pattern in the SSU changed. The SSU is monitored under the Michigan Disposal Waste Treatment Plant operating license.

81. Section 2.7, Land-Use & Zoning: The EA must be revised to provide an update on current land-use and zoning surrounding the facility. Although it is recognized that this information may have not changed a lot since the February 2011 Report it but still should be reviewed for accuracy and updating.

Attachment C is the current zoning map for the area around the site. No notable changes in the land use or zoning from the 2011 EA zoning map are apparent.

82. Section 2.9.1, Demographics: The EA must be revised to provide an update on current demographic conditions surrounding the facility which may have changed from the conditions described in the February 2011 Report.

Attachment D contains the current demographic information from The Southeast Michigan Council of Governments (SEMCOG) for Van Buren Township in Wayne County. The information includes data from the 2020 Census. The 2011 EA used data from the 2000 census. The population of Van Buren Township increased from 23,599 to 30,375 from 2000 to 2020. Between 2000 and 2020, the percentage of the population that is Black increased from 12% to about 27% and Hispanic increased from 2.2% to 4.1%. The median household income increased from $50,924 to $75,608 and the percentage of households in poverty increased from 6% to 11.7%.

86. Section 2.13, Terrestrial Ecosystem: The EA must be revised to provide an update on the terrestrial ecosystems at and surrounding the facility which has changed from the conditions described in the February 2011 Report, including the fact that the woodlot, whose description takes up the majority of this section of the report, is no longer present.

Since 2011, the major change to the on-site terrestrial ecosystem has been the development of the woodlot wherein wetlands were removed (and mitigated) for the construction of Cell G-1.

87. Section 2.14, Aquatic Ecosystem: The EA must be revised to provide an update on the aquatic ecosystems at and surrounding the facility which has changed from the conditions described in the February 2011 Report, including the fact that the woodlot whose description takes up the majority of this section of the report is no longer present. In addition, it was noted that the ditches that drain the site were not mentioned here as aquatic ecosystems; however, since they are not waters of the state and are ephemeral in nature, this is acceptable.

The major change to the aquatic ecosystem since 2011 was the development of the woodlot wherein wetlands were removed (and mitigated) for the construction of Cell G- 1. This was the only natural aquatic ecosystem on the site at that time. Currently, interior ditches and sedimentation basins are present on the site but are engineered

structures for stormwater management. As such they are subject to periodic maintenance including removal of sediment and thus not considered natural aquatic ecosystems. The operation of the stormwater management program reduces the chance for impact to off-site aquatic ecosystems as the discharge to Quirk Drain is treated by sedimentation, filtration, and granular activated carbon. Therefore, under normal operating conditions the facility will have no deleterious effects on off-site aquatic ecosystems.

88. Section 3.2, Floodway/Floodplain: The EA must be revised to provide an update regarding the presence of floodways/floodplains in the vicinity of the facility.

A current FEMA flood risk map is shown on Figure 2 of the 2011 EA. No changes to the flood risk map have occurred in the vicinity of the site, so Figure 2 is still applicable for the current license. The WDI facility is not within the risk zone for flooding.

89. Section 3.4, Sole Source Aquifer: The EA must be revised to provide an update regarding verification of no sole-source aquifers at the facility.

According to the map on the USEPA website (www.epa.gov/dwssa/ map-sole-source-aquifer- locations) there are no sole source aquifers in the State of Michigan.

90. Section 3.5, Public Water Supply: The EA must be revised to provide an update regarding verification of no public water supply within 2000 feet of the facility.

As presented in the Supplemental Hydrogeological Information document provided as another attachment to this license application, there are no public water supply wells within 2000 feet of the facility.

91. Section 3.6, Wetlands: The EA must be revised to provide an update regarding wetlands at the facility.

With the removal of the woodlot, which was done in accordance with a permit that included mitigation, there are no regulated wetlands at the site. Sedimentation basins are exempt by the following rule in Section 30305 of Part 303:

> 4) A wetland that is incidentally created as a result of 1 or more of the following activities is not subject to regulation under this part:
>
> (b) Construction and operation of a water treatment pond, lagoon, or storm water facility in compliance with the requirements of state or federal water pollution control laws.

92. Section 3.7, Wild and Scenic Rivers: The EA must be revised to provide an update regarding wild and scenic rivers potentially impacted by the facility.

A review of the map at https://www.rivers.gov/michigan shows there are no rivers designated as wild and scenic near the facility.

93. Section 3.8, National Register of Historic Places: The EA must be revised to provide an update regarding properties on the National Register of Historic Places potentially impacted by the facility.

A review of Michigan Historic Sites On-Line and the National Register of Historic Places confirm that there are no historic properties within a mile of the facility. Therefore, there is no potential for there to be impact from the facility.

94. Section 3.9, Endangered Species: The EA must be revised to provide an update regarding endangered species at or near the facility and potentially impacted by the facility.

The identification of threatened or endangered species was conducted by contacting the US Fish and Wildlife Service to determine whether the continued operation of the WDI landfill would have impact on threatened or endangered species or habitat in the area of the facility. A consistency letter generated using the Michigan DKey within the Information for Planning and Consultation (IPaC) system is included in Attachment E. The letter indicates “No effect” on threatened and endangered species that could be present near the project site.

98. Section 4.1.1, Primary Impacts: The MMD does not agree with the statement “However, because of proximity to the Airport and the isolation of the site by screening berms, this (the Landfill – added) will be barely noticeable from the surrounding area.” The Landfill can be seen from a very long distance in most any direction, and this negative aesthetic impact will only increase as additional Landfill Cells are constructed. The EA must be revised to discuss this issue.

While the landfill can be seen from afar in most directions, the screening berm is effective from I-94 and the Service Drive, where most human traffic near the landfill is located. Further, active disposal areas are barely visible from off-site, and aesthetics of the existing landfill areas have been improved by installing green colored interim EGC when the waste areas reach grade. The intent of the EGC is to better blend in with the surroundings. As the landfill expands vertically, it will become more visible, but the aesthetic impact will be minimized by use of EGC liner. When closed, the landfill will have a final cover that is grass covered (either natural or synthetic) so the long-term aesthetic impact will be minimized.

105. Section 5.2.1, Groundwater: The EA must be revised to discuss groundwater use surrounding the facility, including what aquifers are used and would be potentially impacted by a release from the facility.

Groundwater use is discussed in Supplemental Hydrogeological Information, which is included as a separate attachment to this license application. In summary, the households and business in the entire area around the facility are connected to

municipal water supply. While no existing water supply wells are located within 2000 feet of the facility, the most available groundwater supply aquifer near the facility is the Glacial Sand Aquifer, which is located beneath the thick clay Glacial Till Unit. , Additional details and discussion of groundwater flow rates and potential for groundwater impact by the site are provided in the Hydrogeological Investigation and Supplemental Hydrogeological Information reports.

107. The EA must be revised to provide a discussion of the presence of the shallow sand at the facility, identifying where it is present and where the shallow sand unit has been removed and for its potential to provide a route for the offsite migration of contaminated groundwater.

The SSU have been removed from the areas of landfill cell construction. This unit is only known to be present south of the currently constructed landfill cells. This unit is not relevant for monitoring the WDI landfill operations. It is relevant for monitoring of the Michigan Disposal Waste Treatment Plant (MDWTP) and associated waste storage areas and is monitored under MDWTP's Operating License. Quarterly groundwater sampling is performed under an EGLE approved sampling and analysis plan, and quarterly reports are submitted to EGLE to demonstrate continued groundwater protection.

109. Section 5.2.2, Surface Water: The EA must be revised to provide an update on current surface water conditions and drainage at the facility which has changed significantly from the conditions described in the February 2011 Report. The EA revision should also describe use/potential human/environmental impacts to Quirk Drain in the event of a release.

Surface water drainage changes are described in the Surface Water Monitoring Sampling and Analysis Plan, which is included as a separate attachment to this license application, as well as in the answer to Comment 80, above. The scenario for a release to Quirk Drain also is discussed in Attachment A of this SEAI.

111. Section 5.2.4, Soil/Sediment: The EA must be revised to provide an update to current conditions at the site. The update must also include a description of surrounding land use and potential receptors off-site.

Soil monitoring at the Site is conducted to determine if PCBs, which can be transported on wind-blown dust particles, are being detected throughout the site. In recent years, sporadic PCB detections have only been detected near the road leading to the transfer box. The fact that PCBs are not being detected further from this location in the prevailing downwind direction suggests that wind-blown PCBs are not reaching potential receptors off-site. The potential human receptors are located south of the I-94 freeway and east of the site east of Beck Road (in the downwind direction of the prevailing winds). To the north is Willow Run Airport and to the west is Airport property and closed landfills.

117. Section 7.0, Conclusions: The EA must be revised to provide an update regarding conclusions of the Environmental Assessment after making the required

revisions to the EA based on the comments provided above.

In general, the conclusions of the 2011 EA still apply. The unavoidable impacts, including noise, truck traffic, change to the site aesthetics, and fugitive emissions will continue with operation under a new Operating License. Risk of significant impact to the surrounding environment and the local population from potential releases due to accidents or failure of protective measures remains very low due to the structures, processes, and monitoring programs employed at the facility. This conclusion is supported by the lack of significant impact during the over 50 years of operations at the site. An updated review of potential impacts from the facility is provided in Attachment A to this SEAI.

ATTACHMENT A.

This attachment and associated table have been prepared to address related Comments 74, 75, 77, 101, 102, 103, 106, and 115. Each of these comments related to potential impacts to the local environment and population due to accidents, failure of equipment or procedures, and from normal operations. The potential impacts addressed in these comments are related to the release of hazardous waste or waste constituents to the environment, either on-site but out of the waste management and disposal areas, or off-site into the surrounding properties. There are three main potential sources of such a release; the waste being transported into and disposed of at the facility, and the landfill leachate that is generated when precipitation comes into contact with the waste, and airborne contaminants or particulates released during or after disposal. Each of these potential sources is further discussed below.

Waste being transported to the facility can be released to the off-site environment if there is an accident or mechanical failure involving the waste hauling vehicles. For these types of releases, depending on the location of the incident, WDI will provide details of the waste profile to first responders to help protect the first responders and the nearby community. If the accident is close to the facility, WDI can mobilize trained personnel and possibly equipment to the incident site to assist with the incident commander from whatever HAZMAT team is responsible. The potential exposure to humans near the incident site is reduced by requiring waste transport vehicles to exit the expressway (I-94) at the Rawsonville exit ramp onto the I-94 Service Drive. This route to the facility does not pass through a residential area and only through limited industrial properties.

Waste transferred onto the facility property can be released by a vehicle accident or equipment malfunction, fugitive dust emissions, or by reaction with other wastes when the waste is placed in the landfill. Waste transport within the facility is done exclusively on paved roads and on-site parking areas that are curbed and guttered. Liquids from the paved areas are transferred by underground piping to a lined pond (lined with clay and a flexible membrane liner [FML]) for storage before being processed by the on-site wastewater pre-treatment plant. Treated stormwater is discharged to the municipal sewer system per a wastewater discharge permit. The transfer of liquids from the lined pond to the pre-treatment plant can be discontinued in the event of an on-site release to a paved area. Therefore, any release by waste hauling vehicles can be contained on-site. As such, the risk of exposure from an on-site release is limited to on-site personnel and is the responsibility of the facility's Emergency Coordinator.

Fugitive dust emissions cause the release of particulates into the air that may result in wind-driven transportation to on-site and off-site locations in the downwind direction. If not controlled, fugitive emissions can cause potential human exposure through respiration

of particulates, or by contact with soil that has been impacted by these particulates. The potential for such emissions is generally limited to times of dry and/or windy conditions. Efforts to control fugitive emissions, which cannot be totally eliminated even during normal operations, include pausing waste transfer operations if windspeeds exceed the sites wind-speed threshold, sweeping and wetting of the roadways on site, using a misting device at the waste transfer box, and enforcing site speed limits on all site traffic. The effectiveness of these measures is evaluated by ambient air monitoring every 12 days throughout the year.

The reaction between wastes placed in the landfill can cause fires or other reactions that can produce particulates or fumes that may contain waste constituents. As with fugitive emissions, generated particulates can result in on-site or off-site exposure to humans. To avoid reactions of this type, waste profiling on the pre-acceptance phase and waste testing on-site prior to disposal, which may include compatibility testing with other wastes, is conducted in accordance with WDI's waste acceptance plan.

The release of leachate to groundwater, surface water, or soil could cause impact to the environment and possible human exposure on-site and off-site if uncontrolled. In the event of a liner failure, leachate could impact groundwater in the glacial sand aquifer that underlies the landfill cells. Multiple failures would be required for leachate to penetrate the double-composite lined cells at the site. First, the primary liner would need to fail via liner defects during construction or damage during or after waste placement. Simultaneously, the leachate collection system, which limits the hydraulic head on the liner, would need to fail, resulting in a buildup of leachate on the liner system. The failure of the leachate collection system could be caused failure of conveyance pipes or clogging of pipes and drainage media. To prevent these types of failures, great care is taken when placing waste materials in the landfill, particularly during the early stages of waste placement in a new landfill cell, to limit the potential for waste placement to cause landfill liner damage. In addition, the leachate conveyance pipes are cleaned during routine maintenance so clogging can be identified and removed. A similar set of failures would be required for the secondary liner to fail. Multiple failure of two liner systems is unlikely if monitoring and maintenance is conducted in accordance with landfill operating permit requirements.

Master Cells (MC) V and VII contain hazardous waste sub-cells that were not constructed with double-composite liner systems, and these cells, plus MC-I, MC-IV, MC-IX, and MC-10 also contain pre-RCRA industrial and municipal solid waste. For these cells, which are underlain by a minimum of ten feet of low permeability clay, the critical failure would be from the leachate collection system failing to control hydraulic head on the liner. Leachate collection system maintenance and lysimeter monitoring (for hazardous waste cells) are conducted to minimize this risk. In the event of a liner failure, groundwater monitoring

wells, sampled semi-annually, are positioned downgradient of the hazardous waste landfill cells (the point of compliance). A groundwater monitoring well network is also installed downgradient of the pre-RCRA and municipal solid waste landfill cells monitored under a separate program. If waste constituents are detected in the groundwater and indicate a release from the landfill, the contamination can be prevented from migrating off-site by installation of a remediation system, such as a groundwater purge and treat system that would form a hydraulic barrier to groundwater flow to any receptors downgradient. The worst-case scenario is for groundwater contamination to evade detection in which case the ultimate receptor would be Belleville Lake. This is unlikely due to the extensive groundwater monitoring well network, the well positions, and the expected dispersion in the slow-moving groundwater in the glacial sand aquifer. Leachate could also be released to the ground surface on-site by damage, defect, or failure of the leachate conveyance pipes and leachate pump system, or by development of leachate seeps on the slopes of landfill cells. Such releases impact soil and in some cases can flow into the surface water ditches that convey stormwater to sedimentation basins. The worst-case scenario for an on-site leachate release to the surface is that it reaches the stormwater ditches and sedimentation basin undetected and is discharged off-site into Quirk Drain. A surface water treatment system is installed to prevent surface releases or surface water contamination from being discharged off-site. The surface water treatment system includes filtration and granular activated carbon (GAC) adsorption. Waste constituents not removed by filtration and GAC would be discharged into Quirk Drain and ultimately Belleville Lake. Impact to Belleville Lake and those near or on the lake is unlikely because a significant volume of leachate would need to be released to result in a discharge of this type. Because releases of this nature are visible and produce odors, they are likely to be detected by inspections or by site personnel in time to be contained on-site. The potential for leachate seeps on cells without a final cover have been reduced by the installation of exposed geomembrane cover (EGC) on the slopes of landfills that have reached grade.

The attached Table 1 summarizes the various types of potential impacts to on-site and off-site environment and the potential for human exposure, from accidents, equipment, or procedural failures, and from normal operations. The effects of potential human exposure depend on the volume of the release, the type and concentration of toxic compound in the release, the route of exposure, and the amount of time of exposure. In the event of an off-site release, it is important that WDI be able to estimate the volume, composition, and timing of the material released. This information can be readily compiled from the extensive records and monitoring data available on site.

Table 1. Potential Impacts to Environment and Local Population.

Description of Incident/Release	Causes of Failure	Pathways to Exposure	Risk to Human Exposure	Response Action	Safeguards In Place to Mitigate
Chemical penetration of landfill liner(s) by waste constituents in landfill leachate or physical penetration by waste materials	Liner defects, liner damage, insuffient leachate head control	Groundwater flow to downgradient receptors. Eventual discharge to Belleville Lake.	Drinkling contaminated groundwater (unlikely due to munipal supply). Contamination in Belleville Lake.	Installation of a remediation system (e.g., groundwater purge system), liner/LCS repairs.	Double composite liners (except for MC-V and MC-VII). LCS, LDCRS, robust QA/QC during construction, and long-term groundwater monitoring program
Waste hauling truck accident off-site but near facility	Traffic accident	Spill of waste onto ground. Migration into surface water. Fumes or particulates in air.	Inhalation of particles. Direct contact with waste.	Emergency response actions and cleanup operations.	Driver requirements for companies hauling waste into the facility.
Leaking or damaged waste hauling truck resulting in on-site spill or release.	Unstable load, incidental liquid leakage, traffic accident.	Spill of waste onto ground. Migration of contaminants into surface water. Fumes or particulates in air.	Inhalation of particles. Direct contact with waste.	Site specific spill response as per contingency plan.	Haul roads are paved, curbed and guttered. Liquids go to lined pond and followed by pre-treatment. Visual inspection of loads, spotter at waste transfer box.
Reaction of incompatable wastes in the landfill causing fire or fumes.	Incomplete or incorrect waste profiling and/or waste receiving errors	Airborne particles or fumes.	Inhalation of particles or fumes both on-site and off-site.	Evacuation, smother reaction with soil or other actions to stop reaction.	Robust waste profiling procedures and finger-print testing during waste acceptance prior to disposal.
Realease of leachate due to seeps on the slopes of cells without final cover	"Perched" leachate on layer of low permability waste.	Contamination of on-site soil or discharge into on-site surface water ditches and sedimentation basins.	If undetected, contaminated surface water ultimately could be discharged off-site into Quirk Drain. Direct exposure of on-site personnel through soil contact.	Remove excess leachate. Create pathways for leachate to drain through low permeability waste. Contain contaminated area. Sample and remove or treat soils and/or sediment and surface water. Repair interim cover.	Use of Exposed Geomembrane Cover on slopes at final grade. Regular cap inspections for seeps. Discharge from the south sedimentation basin is controlled and can be stopped. Contaminated surface water could be pumped and hauled if existing filtration/treatment system is not able to treat a particular contaminant.
Release of leachate via broken conveyance pipes	Damage to pipes or failure due to age.	Contamination of on-site soil or into on-site surface water ditches and sedimentation basins.	If undetected, contaminated surface water could be discharged off-site into Quirk Drain. Direct exposure to impatcted soil by on-site personnel.	Stop leachate flow. Contain contaminated area. Sample and remove or treat soils and/or sediment and surface water.	Double-walled pipes, robust inspection program during pipe installation/construction and during routine operation, treatment of surface water prior to off-site discharge.
Fugitive emmisions during normal waste handling operations	Dry and windy conditions, inadequate daily cover	Airborne dust particles or fumes carried off-site by wind.	Inhalalion of particles or fumes containing waste constiuents.	Shut down transfer of waste to landfill when wind speeds exceed allowable levels, apply water to road ways, spray mist at transfer box, and application of daily cover.	Fugitive dust and track-out prevention SOPs. Ambient air monitoring program.

Attachment B. Climate and Weather Data

NOAA Atlas 14, Volume 8, Version 2 DETROIT METRO AP
Station ID: 20-2103
Location name: Detroit, Michigan, USA*
Latitude: 42.2314°, Longitude: -83.3308°
Elevation:
Elevation (station metadata): 631 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.312** (0.271-0.367)	**0.369** (0.319-0.434)	**0.463** (0.400-0.545)	**0.543** (0.466-0.642)	**0.656** (0.544-0.794)	**0.745** (0.604-0.909)	**0.835** (0.654-1.04)	**0.929** (0.698-1.18)	**1.06** (0.763-1.36)	**1.15** (0.812-1.50)
10-min	**0.457** (0.396-0.537)	**0.540** (0.468-0.635)	**0.678** (0.585-0.799)	**0.795** (0.682-0.939)	**0.960** (0.797-1.16)	**1.09** (0.884-1.33)	**1.22** (0.958-1.52)	**1.36** (1.02-1.72)	**1.54** (1.12-1.99)	**1.69** (1.19-2.20)
15-min	**0.557** (0.483-0.655)	**0.658** (0.570-0.774)	**0.827** (0.714-0.974)	**0.970** (0.832-1.15)	**1.17** (0.972-1.42)	**1.33** (1.08-1.62)	**1.49** (1.17-1.85)	**1.66** (1.25-2.10)	**1.88** (1.36-2.43)	**2.06** (1.45-2.68)
30-min	**0.764** (0.662-0.898)	**0.902** (0.781-1.06)	**1.13** (0.979-1.34)	**1.33** (1.14-1.57)	**1.61** (1.34-1.95)	**1.83** (1.48-2.24)	**2.05** (1.61-2.55)	**2.29** (1.72-2.90)	**2.60** (1.88-3.36)	**2.85** (2.01-3.71)
60-min	**0.974** (0.844-1.14)	**1.15** (0.996-1.35)	**1.45** (1.25-1.70)	**1.70** (1.46-2.01)	**2.07** (1.72-2.51)	**2.36** (1.92-2.89)	**2.66** (2.08-3.31)	**2.97** (2.24-3.77)	**3.40** (2.46-4.39)	**3.73** (2.63-4.86)
2-hr	**1.18** (1.03-1.38)	**1.40** (1.22-1.63)	**1.76** (1.53-2.06)	**2.08** (1.79-2.44)	**2.53** (2.11-3.05)	**2.89** (2.36-3.51)	**3.26** (2.58-4.04)	**3.66** (2.77-4.61)	**4.20** (3.06-5.39)	**4.62** (3.28-5.98)
3-hr	**1.31** (1.15-1.53)	**1.55** (1.35-1.80)	**1.94** (1.69-2.27)	**2.29** (1.98-2.68)	**2.80** (2.35-3.37)	**3.20** (2.63-3.89)	**3.63** (2.88-4.48)	**4.08** (3.10-5.12)	**4.70** (3.44-6.01)	**5.19** (3.69-6.69)
6-hr	**1.55** (1.36-1.79)	**1.80** (1.58-2.08)	**2.24** (1.96-2.60)	**2.64** (2.29-3.06)	**3.21** (2.72-3.85)	**3.69** (3.05-4.45)	**4.19** (3.35-5.14)	**4.73** (3.62-5.91)	**5.48** (4.04-6.97)	**6.07** (4.36-7.78)
12-hr	**1.80** (1.59-2.06)	**2.06** (1.82-2.36)	**2.52** (2.22-2.90)	**2.94** (2.57-3.39)	**3.57** (3.05-4.26)	**4.09** (3.41-4.92)	**4.65** (3.74-5.68)	**5.26** (4.06-6.53)	**6.11** (4.54-7.74)	**6.80** (4.91-8.64)
24-hr	**2.06** (1.83-2.35)	**2.35** (2.08-2.67)	**2.85** (2.52-3.25)	**3.30** (2.90-3.78)	**3.98** (3.42-4.71)	**4.55** (3.81-5.42)	**5.15** (4.17-6.24)	**5.80** (4.51-7.15)	**6.71** (5.02-8.44)	**7.45** (5.42-9.41)
2-day	**2.35** (2.10-2.66)	**2.69** (2.40-3.04)	**3.27** (2.90-3.70)	**3.78** (3.34-4.29)	**4.52** (3.89-5.29)	**5.12** (4.30-6.04)	**5.75** (4.68-6.90)	**6.42** (5.02-7.85)	**7.35** (5.54-9.16)	**8.09** (5.93-10.2)
3-day	**2.58** (2.31-2.90)	**2.93** (2.62-3.30)	**3.54** (3.15-3.99)	**4.06** (3.60-4.60)	**4.82** (4.16-5.61)	**5.44** (4.58-6.38)	**6.08** (4.96-7.25)	**6.75** (5.30-8.21)	**7.69** (5.81-9.53)	**8.42** (6.20-10.5)

4-day	**2.78** (2.49-3.12)	**3.14** (2.82-3.53)	**3.76** (3.36-4.23)	**4.30** (3.82-4.85)	**5.07** (4.38-5.88)	**5.70** (4.81-6.66)	**6.34** (5.19-7.55)	**7.03** (5.53-8.52)	**7.97** (6.04-9.85)	**8.71** (6.43-10.9)
7-day	**3.29** (2.96-3.67)	**3.69** (3.32-4.12)	**4.36** (3.91-4.88)	**4.94** (4.41-5.54)	**5.77** (5.00-6.64)	**6.43** (5.45-7.46)	**7.11** (5.84-8.40)	**7.82** (6.18-9.41)	**8.79** (6.70-10.8)	**9.55** (7.09-11.8)
10-day	**3.75** (3.39-4.17)	**4.18** (3.77-4.65)	**4.90** (4.41-5.46)	**5.51** (4.93-6.16)	**6.39** (5.55-7.31)	**7.08** (6.02-8.18)	**7.79** (6.42-9.15)	**8.52** (6.76-10.2)	**9.52** (7.28-11.6)	**10.3** (7.68-12.7)
20-day	**5.10** (4.63-5.62)	**5.61** (5.09-6.19)	**6.46** (5.84-7.14)	**7.16** (6.44-7.95)	**8.15** (7.11-9.23)	**8.91** (7.62-10.2)	**9.68** (8.02-11.3)	**10.5** (8.35-12.4)	**11.5** (8.87-14.0)	**12.3** (9.26-15.1)
30-day	**6.26** (5.71-6.88)	**6.87** (6.25-7.56)	**7.86** (7.13-8.65)	**8.66** (7.82-9.57)	**9.75** (8.53-11.0)	**10.6** (9.07-12.0)	**11.4** (9.47-13.2)	**12.2** (9.78-14.4)	**13.3** (10.3-16.0)	**14.1** (10.6-17.2)
45-day	**7.79** (7.12-8.53)	**8.56** (7.81-9.37)	**9.76** (8.88-10.7)	**10.7** (9.70-11.8)	**12.0** (10.5-13.4)	**12.9** (11.1-14.6)	**13.8** (11.5-15.8)	**14.6** (11.7-17.2)	**15.7** (12.1-18.8)	**16.5** (12.5-20.0)
60-day	**9.13** (8.36-9.96)	**10.1** (9.20-11.0)	**11.5** (10.5-12.6)	**12.6** (11.4-13.8)	**14.0** (12.3-15.6)	**15.0** (12.9-16.9)	**16.0** (13.3-18.2)	**16.8** (13.5-19.6)	**17.9** (13.8-21.3)	**18.6** (14.1-22.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

1991-2020 | 2006-2020 | 1981-2010

MAX TEMP (°F) | MIN TEMP (°F) | AVG TEMP (°F) | PRECIP (IN) | SNOW (IN)

find stations by name

Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi

DETROIT CITY AP
DETROIT METRO AP
DETROIT WILLOW RUN AP
DEXTER 2.2 SE
DIMONDALE 1 WSW
DOWAGIAC 1 W
DUNDEE
DURAND WWTP

DETROIT WILLOW RUN AP, MI

Get this data as .csv | .pdf
Station info: USW00014853

Season	MAX TEMP (°F)	MIN TEMP (°F)	AVG TEMP (°F)	PRECIP (IN)
Annual	61.1	41.6	51.4	30.19
Winter	36.4	22.0	29.2	4.80
Spring	60.3	39.1	49.7	8.58
Summer	84.0	61.7	72.9	9.08

Season	MAX TEMP (°F)	MIN TEMP (°F)	AVG TEMP (°F)	PRECIP (IN)
Autumn	63.9	43.7	53.8	7.73

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Annual Normals
1991-2020

Generated on 04/21/2025

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 777 ft. Lat: 42.2333° N Lon: 83.5333° W
Station: **DETROIT WILLOW RUN AP, MI US USW00014853**

Freeze Data

Spring Freeze Dates (Month/Day)

Temp (F)	Probability of later date in spring (through Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	05/21	05/16	05/11	05/07	05/04	05/01	04/28	04/25	04/21
32	05/11	05/05	04/30	04/28	04/24	04/21	04/19	04/15	04/10
28	04/28	04/22	04/19	04/15	04/13	04/10	04/06	04/03	03/31
24	04/14	04/08	04/04	04/02	03/31	03/29	03/26	03/21	03/16
20	04/01	03/30	03/27	03/23	03/20	03/17	03/14	03/10	03/05
16	03/26	03/20	03/16	03/13	03/10	03/08	03/05	03/01	02/23

Fall Freeze Dates (Month/Day)

Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	09/28	10/01	10/04	10/07	10/10	10/14	10/17	10/21	10/25
32	10/07	10/13	10/18	10/21	10/24	10/27	10/30	11/02	11/06
28	10/20	10/26	10/30	11/01	11/04	11/07	11/10	11/14	11/18
24	11/02	11/06	11/10	11/13	11/15	11/18	11/21	11/26	12/01
20	11/11	11/15	11/20	11/24	11/28	12/01	12/04	12/08	12/17
16	11/21	11/28	12/01	12/04	12/08	12/12	12/16	12/21	12/26

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	178.0	170.0	165.0	161.0	157.0	154.0	149.0	145.0	136.0
32	199.0	193.0	187.0	184.0	179.0	175.0	170.0	165.0	158.0
28	225.0	218.0	213.0	208.0	204.0	200.0	196.0	189.0	183.0
24	251.0	243.0	238.0	233.0	229.0	226.0	222.0	217.0	211.0
20	273.0	266.0	261.0	256.0	251.0	247.0	242.0	237.0	230.0
16	297.0	289.0	280.0	276.0	272.0	267.0	262.0	256.0	249.0

-9999: Data not available

* Probability of observing a temperature as cold or colder than the indicated threshold, later in the spring or earlier in the fall than the indicated date

blank: missing or insufficient data

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Current Location: Elev: 777 ft. Lat: 42.2333° N Lon: 83.5333° W
Station: **DETROIT WILLOW RUN AP, MI US USW00014853**

Summary of Monthly Normals
1991-2020
Generated on 04/21/2025

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Temperature (°F)

	Mean						Cooling Degree Days Base (above)						Heating Degree Days Base (above)				Mean Number of Days					
Month	Daily Max	Daily Min	Mean	Long Term Max Std Dev	Long Term Min Std Dev	Long Term Avg Std Dev	55	57	60	65	70	72	55	57	60	65	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
01	33.7	19.6	26.6	4.4	5.8	5.0	0.3	0.1	0.0	0.0	0.0	0.0	878.9	940.6	1033.6	1188.7	0.0	0.0	2.6	15.8	27.6	3.2
02	36.9	20.8	28.8	5.1	5.8	5.4	0.5	0.1	0.0	0.0	0.0	0.0	732.5	788.1	872.0	1012.1	0.0	0.0	3.2	12.1	25.4	1.8
03	47.6	29.0	38.3	5.3	4.3	4.6	10.9	7.7	4.4	1.3	0.2	0.0	528.6	587.4	677.1	829.0	0.0	0.0	11.3	3.2	22.6	0.2
04	60.7	38.7	49.7	3.3	2.2	2.5	48.9	34.7	19.0	4.8	0.6	0.2	207.9	253.7	328.0	463.8	0.0	0.0	24.8	0.2	8.7	0.0
05	72.5	49.6	61.0	3.6	3.6	3.5	223.5	180.3	125.6	60.6	23.4	14.7	36.0	54.8	93.1	183.1	0.0	1.3	30.5	0.0	1.1	0.0
06	82.3	59.6	70.9	2.5	1.9	1.9	479.1	420.0	334.0	203.1	99.3	68.6	0.8	1.8	5.7	24.6	0.0	4.5	30.0	0.0	0.0	0.0
07	86.2	63.4	74.8	3.2	2.5	2.7	613.6	551.6	458.6	306.1	169.9	125.3	0.0	0.0	0.0	2.4	0.4	8.9	31.0	0.0	0.0	0.0
08	83.7	62.1	72.9	2.8	2.2	2.3	554.7	492.7	400.0	251.0	123.2	84.2	0.0	0.0	0.3	6.1	0.0	4.0	31.0	0.0	0.0	0.0
09	77.2	53.9	65.6	2.9	2.2	2.3	325.6	271.9	198.1	100.6	40.2	25.7	9.3	15.6	31.7	84.2	0.0	2.2	30.0	0.0	0.0	0.0
10	64.0	43.3	53.6	2.4	2.6	2.5	91.0	67.2	41.0	14.1	3.9	2.1	132.7	171.0	237.8	365.9	0.0	0.0	28.4	0.0	4.5	0.0
11	50.3	33.9	42.1	4.7	3.1	3.7	10.6	6.7	2.9	0.2	0.0	0.0	397.6	453.7	539.9	687.2	0.0	0.0	15.1	1.0	15.4	0.0
12	38.5	25.8	32.1	4.6	4.5	4.5	0.9	0.5	0.1	0.0	0.0	0.0	709.1	770.7	863.3	1018.3	0.0	0.0	4.0	10.1	24.8	1.0
Summary	61.1	41.6	51.4	3.7	3.4	3.4	2360	2034	1584	942	461	321	3633	4037	4682	5865	0.4	20.9	241.9	42.4	130.1	6.2

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Current Location: Elev: 777 ft. Lat: 42.2333° N Lon: 83.5333° W
Station: **DETROIT WILLOW RUN AP, MI US USW00014853**

Summary of Monthly Normals
1991-2020
Generated on 04/21/2025

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Precipitation (in.)								
	Totals	Mean Number of Days				Precipitation Probabilities Probability that precipitation will be equal to or less than the indicated amount		
	Means	Daily Precipitation				Monthly Precipitation vs. Probability Levels		
Month	Mean	>= 0.01	>= 0.10	>= 0.50	>= 1.00	0.25	0.50	0.75
01	1.68	9.2	4.1	1.0	0.1	0.94	1.60	2.38
02	1.45	8.2	3.7	0.9	0.0	0.64	1.19	2.19
03	2.14	9.8	5.0	1.1	0.4	0.98	2.07	3.32
04	3.14	12.6	7.0	2.2	0.3	2.30	3.13	3.94
05	3.30	14.0	7.5	2.6	0.6	2.14	2.97	4.44
06	2.99	11.4	6.5	2.2	0.5	1.64	2.73	4.06
07	2.98	10.8	5.7	1.8	0.6	2.23	2.57	3.66
08	3.11	11.7	6.2	2.1	0.5	2.22	3.18	4.05
09	2.97	12.5	5.7	1.9	0.8	1.89	2.67	3.71
10	2.53	13.2	5.8	1.5	0.5	1.83	2.34	3.14
11	2.23	10.9	4.9	1.3	0.4	1.46	2.03	2.95
12	1.67	11.0	4.4	1.1	0.3	1.14	1.71	2.12
Summary	30.19	135.3	66.5	19.7	5.0	19.41	28.19	39.96

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Current Location: Elev: 777 ft. Lat: 42.2333° N Lon: 83.5333° W
Station: **DETROIT WILLOW RUN AP, MI US USW00014853**

Summary of Monthly Normals
1991-2020
Generated on 04/21/2025

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Growing Degree Units (Monthly)

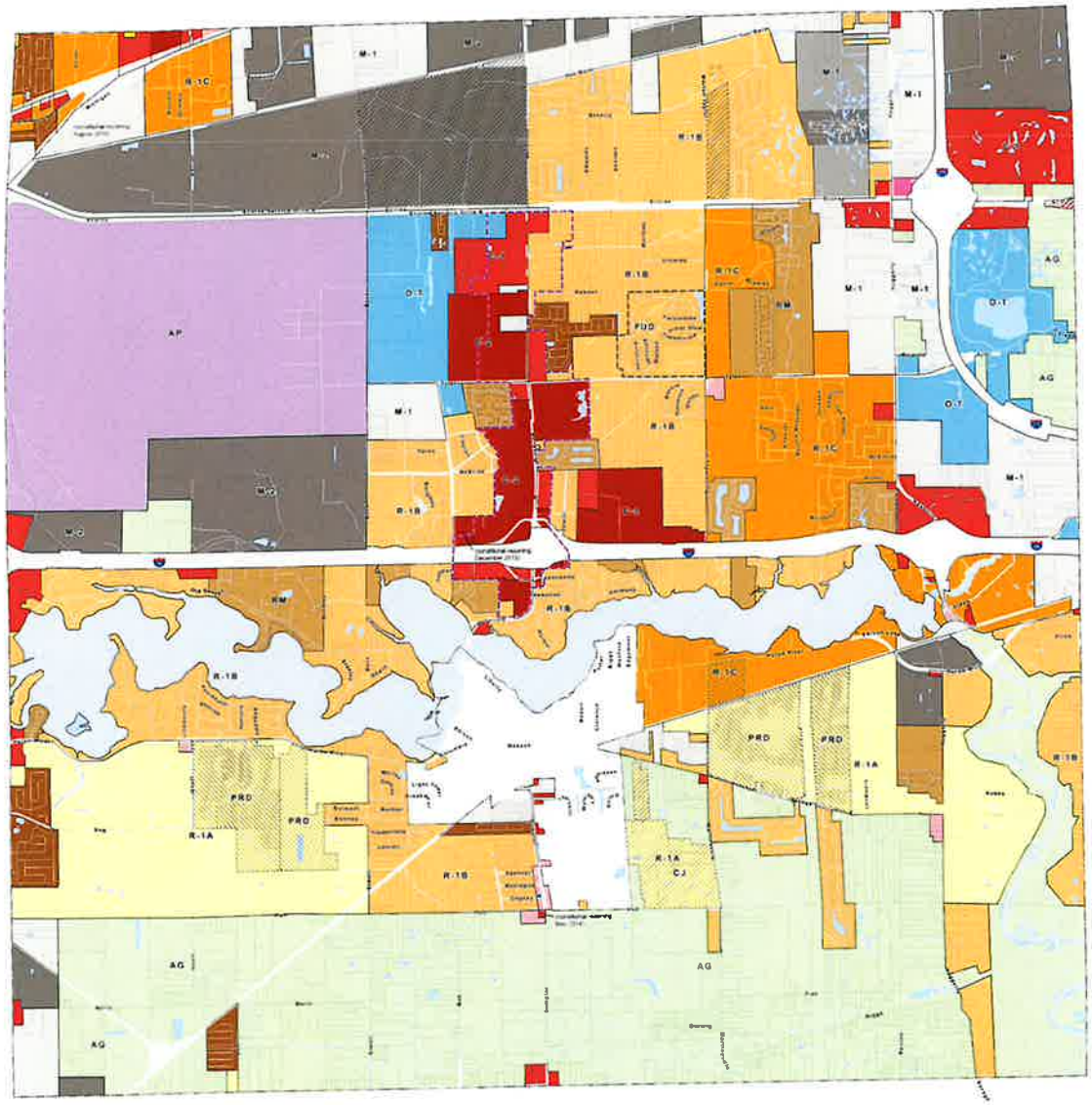
Base	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Growing Degree Units (Monthly)												
Base	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
40	15.1	21.1	102.0	310.0	652.7	928.3	1078.6	1019.7	766.3	425.6	143.8	34.8
45	4.3	8.4	52.2	192.6	499.4	778.3	923.6	864.7	616.6	285.0	73.0	13.4
50	1.1	2.5	24.8	104.7	352.5	628.4	768.7	709.8	468.3	171.6	31.0	3.9
55	0.3	0.5	10.9	48.9	223.5	479.1	613.6	554.7	325.6	91.0	10.6	0.9
60	0.0	0.0	4.4	19.0	125.6	334.0	458.6	400.0	198.1	41.0	2.9	0.1
Growing Degree Units for Corn (Monthly)												
50/86	5.4	11.4	60.5	184.2	394.2	609.7	727.8	689.0	482.0	239.7	70.4	12.5

Growing Degree Units (Accumulated Monthly)

40	15	36	138	448	1101	2029	3108	4128	4894	5319	5463	5498
45	4	13	65	258	757	1535	2459	3324	3940	4225	4298	4312
50	1	4	28	133	486	1114	1883	2592	3061	3232	3263	3267
55	0	1	12	61	284	763	1377	1932	2257	2348	2359	2360
60	0	0	4	23	149	483	942	1342	1540	1581	1584	1584
Growing Degree Units for Corn (Monthly Accumulated)												
50/86	5	17	77	262	656	1265	1993	2682	3164	3404	3474	3487

Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86.
Empty or blank cells indicate data is missing or insufficient occurrences to compute value.

Attachment C. Zoning Map



Zoning Map

Charter Township of Van Buren
Wayne County, Michigan

August 17, 2023

Legend

- AG - Agricultural and Estates
- R-1A - Single Family Residential
- R-2A - Single Family Residential
- R-1B - Single Family Residential
- R-1C - Single Family Residential
- RM - Multiple Family Residential
- RMH - Mobile Home Park
- C - Local Business
- C-1 - General Business
- C-2 - Extensive Highway Business
- FS - Freeway Service
- O-T - Office/Technology
- M-1 - Light Industrial
- M-T - Industrial Transportation
- M-2 - General Industrial
- SRMU - Sumpter Road Mixed Use
- AP - Airport
- Land subject to a Planned Residential Development (PRD) agreement
- Land subject to a Planned Unit Development (PUD) agreement
- Belleville Road Overlay District
- Zoning subject to a Consent Judgement (CJ)

CERTIFICATION
I LEON WRIGHT CLERK OF THE CHARTER TOWNSHIP OF VAN BUREN DO HEREBY CERTIFY THAT THIS IS A TRUE COPY OF THE MAP ADOPTED BY THE TOWNSHIP BOARD OF THE CHARTER TOWNSHIP OF VAN BUREN WAYNE COUNTY MICHIGAN IN JUNE OF 1950 AS WELL AS THOSE AMENDMENTS MADE AS OF THE REVISED DATE

LEON WRIGHT CLERK, CHARTER TOWNSHIP OF VAN BUREN

Note
The parcel lines of this map are representational of the actual parcel lines and are not intended to be substituted for an official survey or used to resolve boundary or area discrepancies. Consult official Charter Township of Van Buren records for purpose statements and areas of parcels and boundaries

REVISION DATES

Jan. 1964	Aug. 1986	Jul. 1992	Jan. 1999	Apr. 2004	Jul. 2007	Aug. 2015	Aug. 2018				
Aug. 1968	Jan. 1988	Nov. 1992	Jul. 1999	Jul. 2004	Sept. 2010	Aug. 2015					
Jan. 1971	Oct. 1988	Apr. 1994	Jul. 1999	Sept. 2004	Aug. 2010	May 2017					
Aug. 1972	Aug. 1989	Oct. 1994	Sept. 1999	Dec. 2004	Nov. 2010	June 2017					
Dec. 1972	Oct. 1990	Mar. 1996	Nov. 2000	Feb. 2005	May 2015	Aug. 2015					
Mar. 1973	Mar. 1991	Jan. 1997	Jan. 2002	Mar. 2005	Jul. 2015	Sept. 2015					
Aug. 1973	Apr. 1991	Aug. 1997	Aug. 2002	Aug. 2006	Apr. 2015	May 2017					
Mar. 1978	Oct. 1991	Oct. 1997	Jan. 2003	Jan. 2006	Jan. 2016	Oct. 2020					
Apr. 1978	Jan. 1992	Nov. 1997	Jan. 2003	Oct. 2006	Jul. 2019	Dec. 2021					
Aug. 1980	Feb. 1992	Feb. 1998	Jul. 2003	Nov. 2007	Oct. 2015	June 2023					
Aug. 1982	Jun. 1992	May 1998	Aug. 2003	Apr. 2007	Dec. 2015	Dec. 2023					

0 3,000 6,000 Feet

Basemap Source: MCGI, v. 17a
Data Source: Van Buren Township 2023
McKenna 2023

MCKENNA

Attachment D. Demographic Information Van Buren Township

Community Profiles

YOU ARE VIEWING DATA FOR:

Van Buren Township

46425 Tyler Rd
Belleville, MI 48111-5217
https://www.vanburen-mi.org/

SEMCOG MEMBER

Census 2020 Population: 30,375
Area: 36.1 square miles

VIEW COMMUNITY EXPLORER MAP VIEW 2020 CENSUS MAP

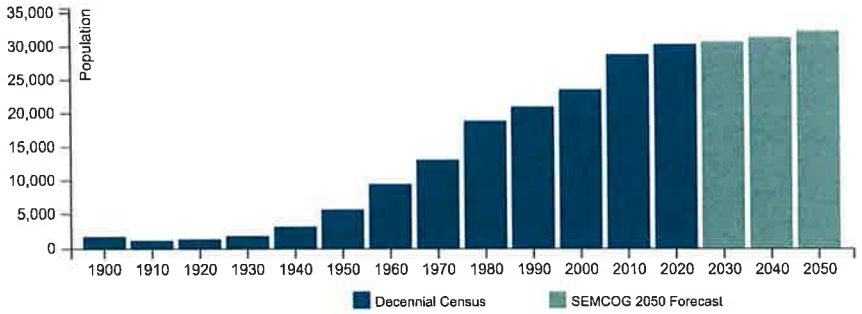
Population and Households

Link to American Community Survey (ACS) Profiles: **Select a Year** 2019-2023 **Social** | **Demographic**

Population and Household Estimates for Southeast Michigan, 2024

Historic Population and Employment by Minor Civil Division, Southeast Michigan

Population Forecast



Population and Households

Population and Households	Census 2020	Census 2010	Change 2010-2020	Pct Change 2010-2020	SEMCOG Jul 2024	SEMCOG 2050
Total Population	30,375	28,821	1,554	5.4%	28,591	32,409
Group Quarters Population	120	210	-90	-42.9%	259	292
Household Population	30,255	28,611	1,644	5.7%	28,332	32,117
Housing Units	13,793	13,315	478	3.6%	14,052	-
Households (Occupied Units)	12,996	11,821	1,175	9.9%	13,291	14,049
Residential Vacancy Rate	5.8%	11.2%	-5.4%	-	5.4%	-
Average Household Size	2.33	2.42	-0.09	-	2.13	2.29

Source: **U.S. Census Bureau**, **2018-2022 American Community Survey 5-Year Estimates**, and **SEMCOG 2050 Regional Development Forecast**

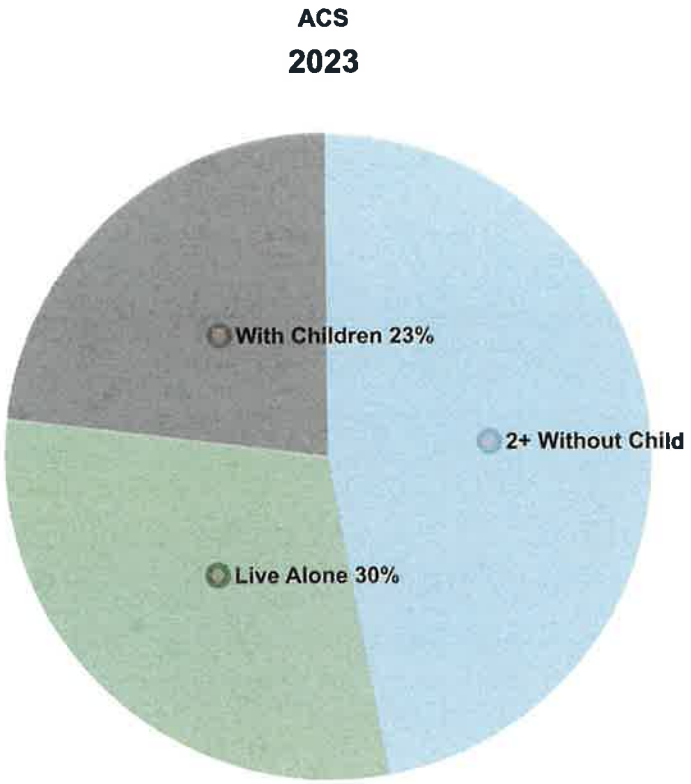
Components of Population Change

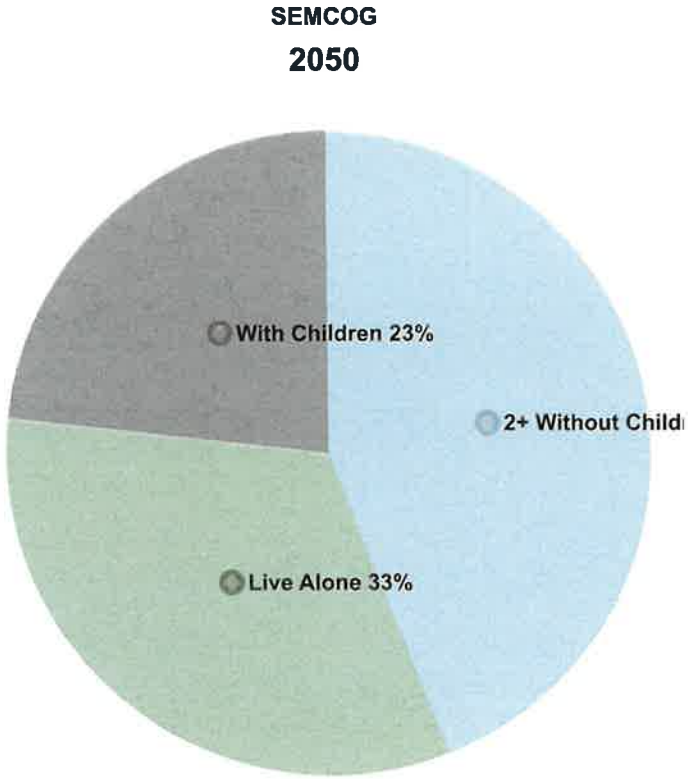
Components of Population Change	2010-2020 Avg.	2020-2023 Avg.
Natural Increase (Births - Deaths)	105	30

Source: **Michigan Department of Community Health Vital Statistics**, **U.S. Census Bureau**, and SEMCOG

Components of Population Change	2010-2020 Avg.	2020-2023 Avg.
Births	291	302
Deaths	186	272
Net Migration (Movement In - Movement Out)	50	-250
Population Change (Natural Increase + Net Migration)	155	-220

Household Types

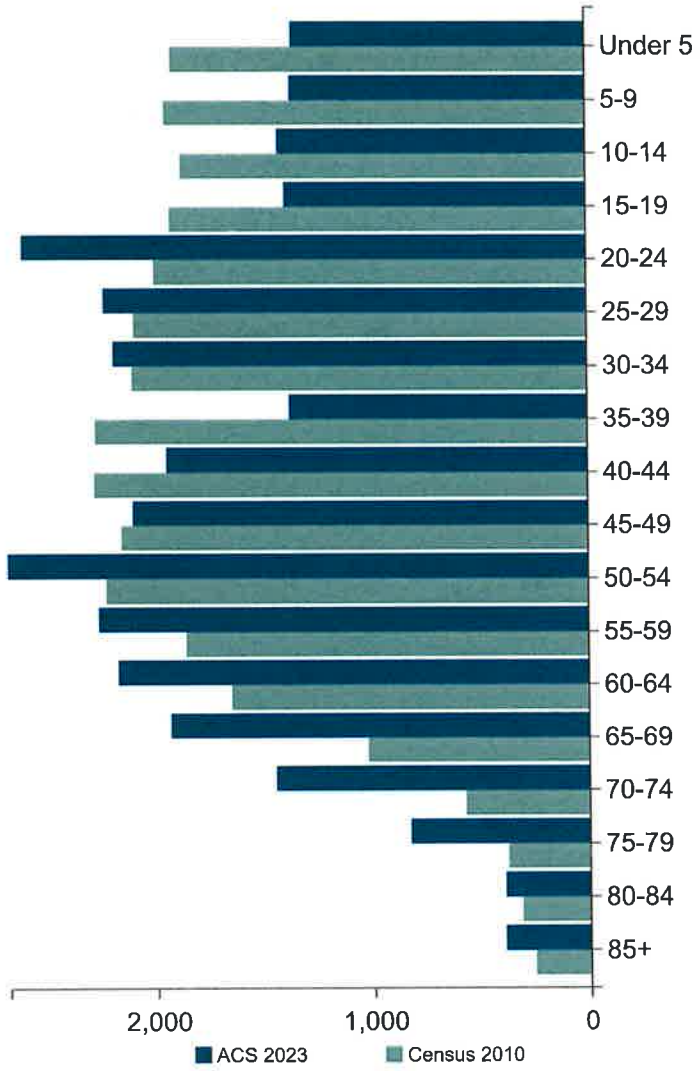




Household Types	Census 2010	ACS 2023	Change 2010-2023	Pct Change 2010-2023	SEMCOG 2050
With Seniors 65+	1,874	3,581	1,707	91.1%	4,226
Without Seniors	9,947	9,170	-777	-7.8%	9,823
Live Alone, 65+	604	1,215	611	101.2%	-
Live Alone, <65	2,923	2,587	-336	-11.5%	-
2+ Persons, With children	3,884	2,941	-943	-24.3%	3,266
2+ Persons, Without children	4,410	6,008	1,598	36.2%	6,185
Total Households	11,821	12,751	930	7.9%	14,049

Source: **U.S. Census Bureau**, **Decennial Census**, **2019-2023 American Community Survey 5-Year Estimates**, and **SEMCOG 2050 Regional Development Forecast**

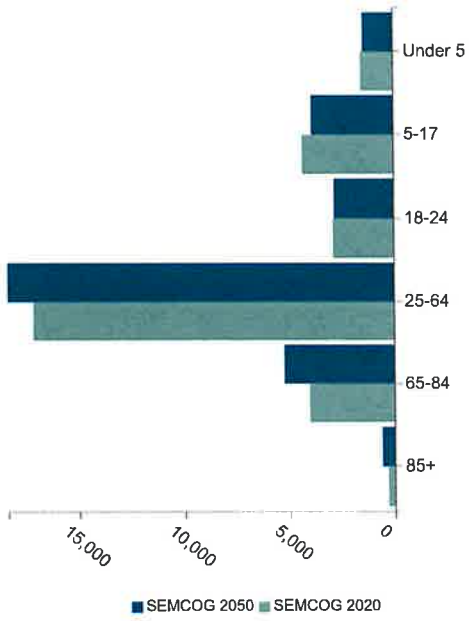
Population Change by Age, 2010-2023



Age Group	Census 2010	Change 2000-2010	ACS 2023	Change 2010-2023
Under 5	1,913	229	1,357	-556
5-9	1,943	367	1,364	-579
10-14	1,869	307	1,423	-446
15-19	1,922	524	1,393	-529
20-24	1,996	-15	2,605	609
25-29	2,092	-440	2,229	137
30-34	2,100	-70	2,186	86
35-39	2,273	442	1,376	-897
40-44	2,278	273	1,943	-335
45-49	2,153	445	2,101	-52
50-54	2,225	526	2,680	455
55-59	1,857	760	2,260	403
60-64	1,650	915	2,172	522
65-69	1,023	514	1,931	908
70-74	574	125	1,448	874
75-79	380	63	828	448
80-84	316	138	393	77
85+	257	159	394	137
Total	28,821	5,262	30,083	1,262
Median Age	36.5	4.4	42.9	6.4

Source: **U.S. Census Bureau**, **Decennial Census**, and **2019-2023 American Community Survey 5-Year Estimates**

Forecasted Population Change 2020-2050



Age Group	2020	2025	2030	2035	2040	2045	2050	Change 2020 - 2050	Pct Change 2020 - 2050
Under 5	1,552	1,552	1,544	1,521	1,468	1,432	1,437	-115	-7.4%
5-17	4,351	4,086	4,040	3,936	3,894	3,871	3,909	-442	-10.2%
18-24	2,906	2,729	2,660	2,736	2,769	2,808	2,845	-61	-2.1%
25-64	17,167	17,250	17,101	17,064	17,505	18,023	18,380	1,213	7.1%
65-84	4,069	4,625	5,111	5,485	5,317	5,237	5,229	1,160	28.5%
85+	330	271	322	393	510	580	609	279	84.5%
Total	30,375	30,513	30,778	31,135	31,463	31,951	32,409	2,034	6.7%

Source: **SEMCOG 2050 Regional Development Forecast**

Older Adults and Youth Populations

Older Adults and Youth Population	Census 2010	ACS 2023	Change 2010-2023	Pct Change 2010-2023	SEMCOG 2050
65 and over	2,550	4,994	2,444	95.8%	5,838
5 to 84	2,293	4,600	2,307	100.6%	5,229
5 and Over	257	394	137	53.3%	609
Under 18	6,893	4,999	-1,894	-27.5%	5,346
to 17	4,980	3,642	-1,338	-26.9%	3,909
Inder 5	1,913	1,357	-556	-29.1%	1,437

Note: Population by age changes over time because of the aging of people into older age groups, the movement of people, and the occurrence of births and deaths.

Source: **U.S. Census Bureau**, **Decennial Census**, **2019-2023 American Community Survey 5-Year Estimates**, and **SEMCOG 2050 Regional Development Forecast**

Race and Hispanic Origin

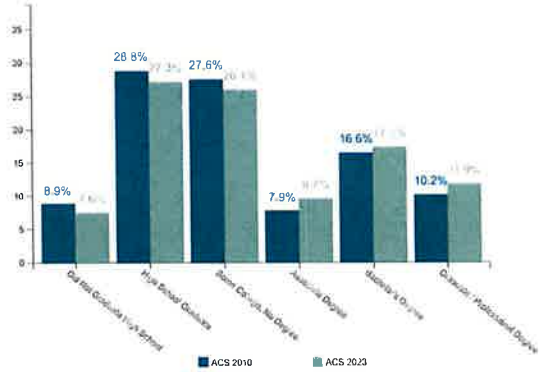
Race and Hispanic Origin	Census 2010	Percent of Population 2010	ACS 2023	Percent of Population 2023	Percentage Point Change 2010-2023
Non-Hispanic	28,035	97.3%	28,838	95.9%	-1.4%
White	18,153	63%	18,499	61.5%	-1.5%
Black	8,217	28.5%	8,057	26.8%	-1.7%
Asian	716	2.5%	752	2.5%	0%
Multi-Racial	760	2.6%	1,277	4.2%	1.6%
Other	189	0.7%	161	0.5%	-0.1%
Hispanic	786	2.7%	1,245	4.1%	1.4%
Total	28,821	100%	30,083	100%	0%

Source: **U.S. Census Bureau Decennial Census** and **2019-2023 American Community Survey 5-Year Estimates**.

Highest Level of Education

Highest Level of Education*	ACS 2010	ACS 2023	Percentage Point Chg 2010-2023
Did Not Graduate High School	8.9%	7.6%	-1.3%
High School Graduate	28.8%	27.3%	-1.6%
Some College, No Degree	27.6%	26.1%	-1.5%
Associate Degree	7.9%	9.7%	1.8%
Bachelor's Degree	16.6%	17.5%	0.9%
Graduate / Professional Degree	10.2%	11.9%	1.7%

* Population age 25 and over



Source: **U.S. Census Bureau, 2006-2010 and 2019-2023**

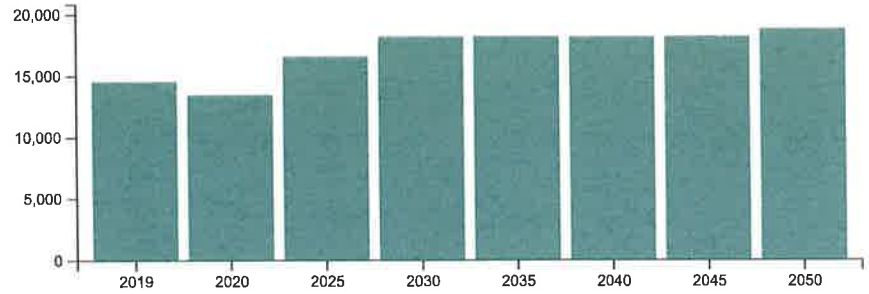
American Community Survey 5-Year Estimates

Economy & Jobs

Link to American Community Survey (ACS) Profiles: **Select a Year** 2019-2023 **Economic**

Historic Population and Employment by Minor Civil Division, Southeast Michigan

Forecasted Jobs



Note: The base year for the employment forecast is 2019, as 2020 employment was artificially low due to the COVID recession.

Source: **SEMCOG 2050 Regional Development Forecast**

Forecasted Jobs by Industry Sector

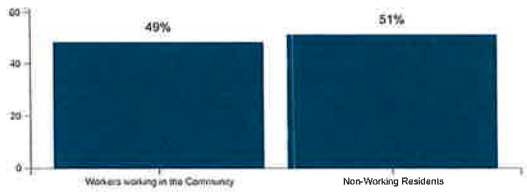
Forecasted Jobs By Industry Sector	2019	2020	2025	2030	2035	2040	2045	2050	Change 2019-2050	Pct Change 2019-2050
Natural Resources, Mining, & Construction	501	482	526	506	516	520	535	546	45	9%
Manufacturing	1,814	1,597	2,668	3,888	3,757	3,571	3,403	3,352	1,538	84.8%
Wholesale Trade	596	541	535	558	575	573	576	579	-17	-2.9%
Retail Trade	1,722	1,565	1,686	1,610	1,477	1,411	1,334	1,250	-472	-27.4%
Transportation, Warehousing, & Utilities	2,506	2,497	3,017	3,001	2,987	2,978	2,888	3,303	797	31.8%
Information & Financial Activities	844	819	925	960	982	996	1,010	1,026	182	21.6%
Professional and Technical Services & Corporate HQ	2,821	2,699	3,393	3,638	3,795	3,935	4,130	4,358	1,537	54.5%
Administrative, Support, & Waste Services	989	973	1,043	1,083	1,126	1,159	1,196	1,233	244	24.7%
Education Services	267	257	265	251	255	255	256	259	-8	-3%
Healthcare Services	351	359	343	383	416	448	499	564	213	60.7%
Leisure & Hospitality	1,430	1,076	1,553	1,657	1,658	1,646	1,671	1,654	224	15.7%
Other Services	683	578	651	677	687	711	727	747	64	9.4%
Public Administration	57	52	59	61	61	61	61	62	5	8.8%
Total Employment Numbers	14,581	13,495	16,664	18,273	18,292	18,264	18,286	18,933	4,352	29.8%

Note: The base year for the employment forecast is 2019, as 2020 employment was artificially low due to the COVID recession.

Source: **SEMCOG 2050 Regional Development Forecast**

Daytime Population

Daytime Population	ACS 2023
Workers working in the Community	12,819
Non-Working Residents	13,598
.ge 15 and under	4,393
lot in labor force	7,672
Inemployed	1,533
Daytime Population	26,417



Source: **2019-2023 American Community Survey 5-Year Estimates.** For additional information, visit SEMCOG's **Interactive Commuting Patterns Map**

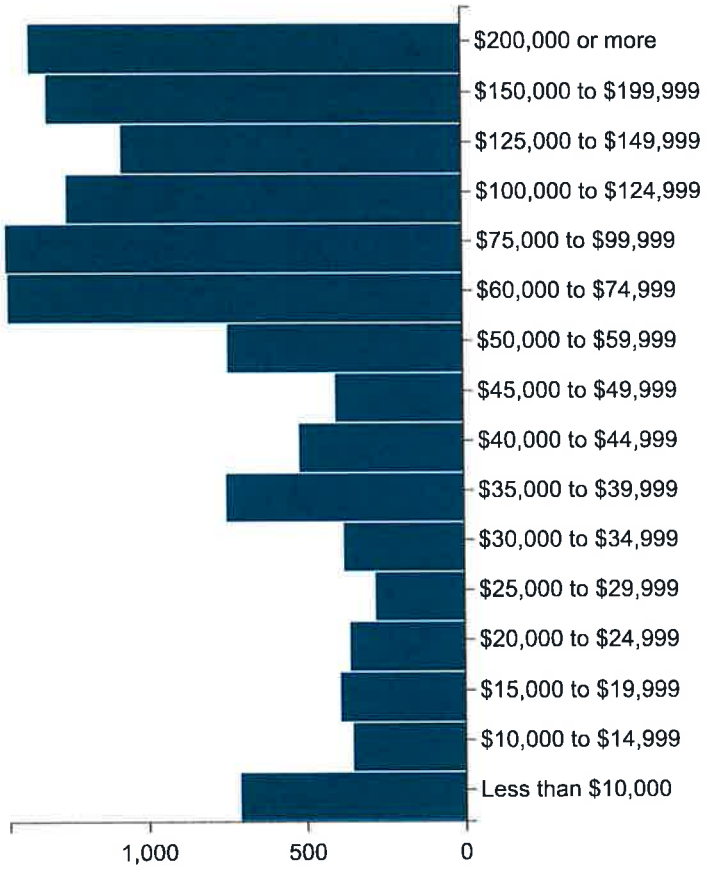
Note: The number of residents attending school outside Southeast Michigan is not available. Likewise, the number of students commuting into Southeast Michigan to attend school is also not known.

Household Income

Income (in 2023 dollars)	ACS 2010	ACS 2023	Change 2010-2023	Percent Change 2010-2023
Median Household Income	$75,565	$75,608	$43	0.1%
Per Capita Income	$40,684	$43,027	$2,343	5.8%

Source: **U.S. Census Bureau, 2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**

Annual Household Income



Annual Household Income	ACS 2023
$200,000 or more	1,363
$150,000 to $199,999	1,308
$125,000 to $149,999	1,073
$100,000 to $124,999	1,246
$75,000 to $99,999	1,440
$60,000 to $74,999	1,434
$50,000 to $59,999	741
$45,000 to $49,999	402
$40,000 to $44,999	517
$35,000 to $39,999	749
$30,000 to $34,999	379
$25,000 to $29,999	280
$20,000 to $24,999	361
$15,000 to $19,999	393
$10,000 to $14,999	354
Less than $10,000	711
Total	**12,751**

Source: **U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates**

Poverty

Poverty	ACS 2010	% of Total (2010)	ACS 2023	% of Total (2023)	% Point Chg 2010-2023
Persons in Poverty	2,949	10.6%	3,412	11.4%	0.8%
Households in Poverty	1,136	9.6%	1,498	11.7%	2.1%

Source: **U.S. Census Bureau, 2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**

Housing

Link to American Community Survey (ACS) Profiles: **Select a Year** 2019-2023 **Housing**

Building Permits 2010 - 2025

Year	Single Family	Two Family	Attach Condo	Multi Family	Total Units	Total Demos	Net Total
2010	10	0	0	0	10	2	8
2011	22	0	0	0	22	4	18
2012	16	0	0	0	16	2	14
2013	9	0	2	0	11	1	10
2014	20	0	0	0	20	1	19
2015	13	0	3	0	16	9	7
2016	42	0	0	3	45	3	42
2017	44	0	0	0	44	9	35
2018	71	0	0	0	71	4	67
2019	63	0	39	0	102	7	95
2020	82	0	0	0	82	5	77
2021	62	0	0	0	62	27	35
2022	44	0	0	0	44	2	42
2023	33	0	52	0	85	35	50
2024	63	0	4	0	67	2	65
2025	11	0	0	0	11	1	10
2010 to 2025 totals	605	0	100	3	708	114	594

Source: **SEMCOG Development**

Note: Permit data for most recent years may be incomplete and is updated monthly.

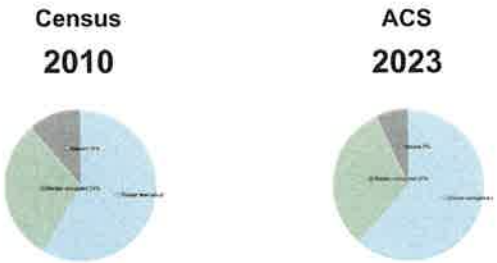
Housing Types

Housing Type	ACS 2010	ACS 2023	Change 2010-2023	New Units Permitted Since 2019
Single Unit	6,128	7,279	1,151	358
Multi-Unit	4,536	4,903	367	95
Mobile Homes or Other	1,634	1,519	-115	0
Total	12,298	13,701	1,403	453
Units Demolished				-79
Net (Total Permitted Units - Units Demolished)				374

Source: **U.S. Census Bureau**, **2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**, **SEMCOG Development**

Housing Tenure

Housing Tenure	Census 2010	ACS 2023	Change 2010-2023
Owner occupied	7,757	8,440	683
Renter occupied	4,064	4,311	247
Vacant	1,494	950	-544
Seasonal/migrant	92	10	-82
Other vacant units	1,402	940	-462
Total Housing Units	13,315	13,701	386



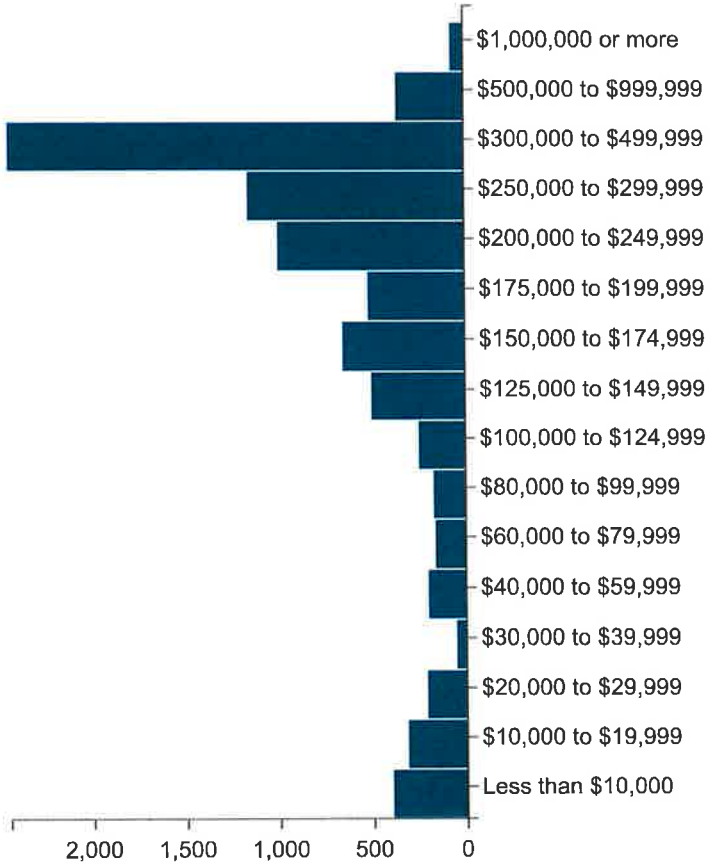
Source: **U.S. Census Bureau**, **2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**

Housing Value and Rent

Housing Value (in 2023 dollars)	ACS 2010	ACS 2023	Change 2010-2023	Percent Change 2010-2023
Median housing value	$240,289	$240,300	$11	0%
Median gross rent	$1,187	$1,166	$-21	-1.8%

Source: **U.S. Census Bureau, 2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**

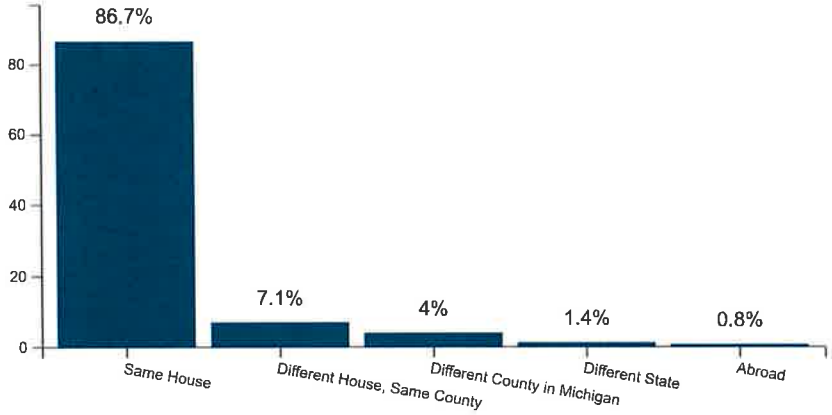
Housing Value



Housing Value	ACS 2023
$1,000,000 or more	67
$500,000 to $999,999	358
$300,000 to $499,999	2,444
$250,000 to $299,999	1,158
$200,000 to $249,999	998
$175,000 to $199,999	515
$150,000 to $174,999	653
$125,000 to $149,999	499
$100,000 to $124,999	247
$80,000 to $99,999	170
$60,000 to $79,999	160
$40,000 to $59,999	201
$30,000 to $39,999	50
$20,000 to $29,999	209
$10,000 to $19,999	314
Less than $10,000	397
Owner-Occupied Units	8,440

Source: **U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates**

Residence One Year Ago *



* This table represents persons, age 1 and over, living in Van Buren Township from 2019-2023. The table does not represent person who moved out of Van Buren Township from 2019-2023.

Source: **U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates**

Transportation

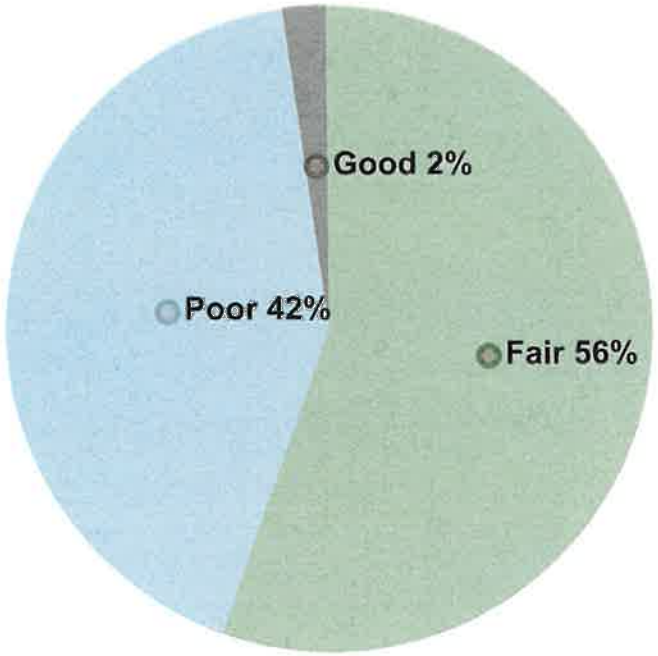
Miles of public road (including boundary roads): 224

Source: **Michigan Geographic Framework**

Pavement Condition (in Lane Miles)

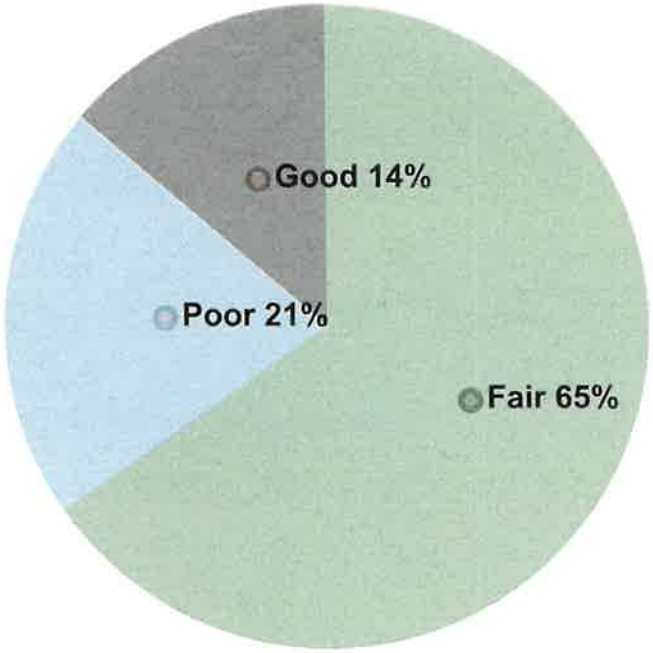
Past Pavement Conditions

2021



Current Pavement Conditions

2023 - 2024



Note: Poor pavements are generally in need of rehabilitation or full reconstruction to return to good condition. Fair pavements are in need of capital preventive maintenance to avoid deteriorating to the poor classification. Good pavements generally receive only routine maintenance, such as street sweeping and snow removal, until they deteriorate to the fair condition.

Source: **SEMCOG**

Bridge Status

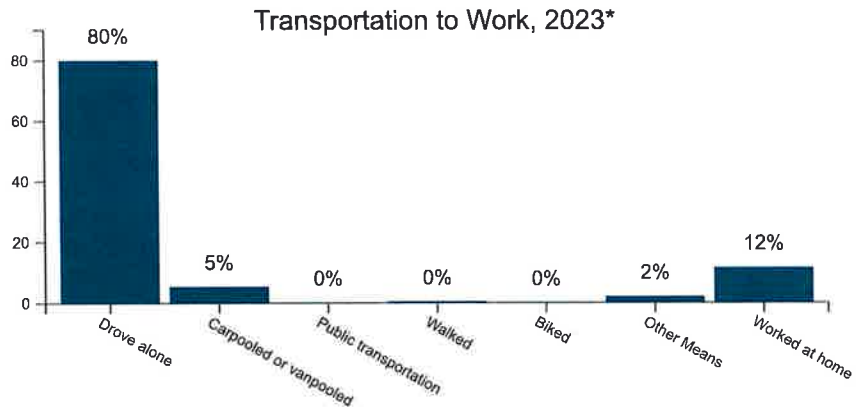
Bridge Status	2008	2008 (%)	2009	2009 (%)	2010	2010 (%)	Percent Point Chg 2008-2010
Open	16	100%	16	100%	23	100%	0%
Open with Restrictions	0	0%	0	0%	0	0%	0%
Closed*	0	0%	0	0%	0	0%	0%
Total Bridges	16	100.0%	16	100.0%	23	100.0%	0.0%
Deficient Bridges	1	6.3%	1	6.3%	5	21.7%	15.5%

* Bridges may be closed because of new construction or failed condition.

Note: A bridge is considered deficient if it is structurally deficient (in poor shape and unable to carry the load for which it was designed) or functionally obsolete (in good physical condition but unable to support current or future demands, for example, being too narrow to accommodate truck traffic).

Source: Michigan Structure Inventory and Appraisal Database

Detailed Intersection & Road Data



* Resident workers age 16 and over

Transportation to Work

Transportation to Work	ACS 2010	% of Total (ACS 2010)	ACS 2023	% of Total (ACS 2023)	% Point Chg 2010-2023
Drove alone	11,832	85.8%	13,051	80.1%	-5.7%
Carpooled or vanpooled	1,471	10.7%	894	5.5%	-5.2%
Public transportation	50	0.4%	34	0.2%	-0.2%
Walked	167	1.2%	76	0.5%	-0.7%
Biked	22	0.2%	8	0%	-0.2%
Other Means	65	0.5%	345	2.1%	1.6%
Worked at home	178	1.3%	1,891	11.6%	10.3%
Resident workers age 16 and over	13,785	100.0%	16,299	100.0%	0.0%

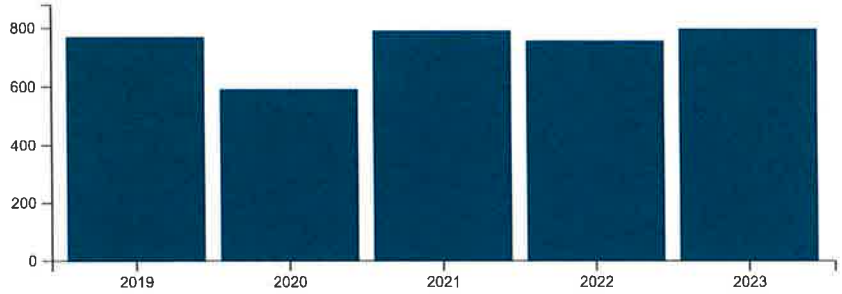
Source: **U.S. Census Bureau, 2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**

Mean Travel Time to Work

Mean Travel Time To Work	ACS 2010	ACS 2023	Change 2010-2023
For residents age 16 and over who worked outside the home	25.9 minutes	23.1 minutes	-2.8 minutes

Source: **U.S. Census Bureau, 2006-2010 and 2019-2023 American Community Survey 5-Year Estimates**

Crashes, 2019-2023



Source: **Michigan Department of State Police with the Criminal Justice Information Center** and **SEMCOG**
Note: Crash data shown is for the entire city.

Crash Severity

Crash Severity	2019	2020	2021	2022	2023	Percent of Crashes 2019 - 2023
Fatal	3	2	6	7	4	0.6%
Serious Injury	16	8	18	11	21	2%
Other Injury	166	131	150	147	172	20.6%
Property Damage Only	586	453	619	593	602	76.8%
Total Crashes	771	594	793	758	799	100%

Crashes by Type

Crashes by Type	2019	2020	2021	2022	2023	Percent of Crashes 2019 - 2023
Head-on	11	9	7	10	11	1.3%
Angle or Head-on/Left-turn	157	130	171	148	173	21%
Rear-End	257	170	218	219	228	29.4%
Sideswipe	120	84	126	146	148	16.8%
Single Vehicle	186	166	224	185	175	25.2%
Backing	14	12	15	12	16	1.9%
Other or Unknown	26	23	32	38	48	4.5%

Crashes by Involvement

Crashes by Involvement	2019	2020	2021	2022	2023	Percent of Crashes 2019 - 2023
Red-light Running	19	16	24	15	21	2.6%
Lane Departure	151	136	168	154	161	20.7%
Alcohol	27	28	19	32	21	3.4%
Drugs	7	8	11	7	9	1.1%
Deer	37	31	43	46	39	5.3%
Train	0	0	0	0	1	0%
Commercial Truck/Bus	66	45	67	81	76	9%
School Bus	2	1	2	6	0	0.3%
Emergency Vehicle	8	3	4	9	9	0.9%
Motorcycle	13	9	8	4	12	1.2%
Intersection	205	158	200	187	156	24.4%
Work Zone	3	23	25	26	83	4.3%
Pedestrian	1	3	2	4	3	0.3%
Bicyclist	1	3	1	5	1	0.3%
Older Driver (65 and older)	113	85	136	131	131	16%
Young Driver (15 to 20)	132	88	144	127	131	16.7%
Distracted Driver	35	26	45	31	38	4.7%
Driveway	48	40	41	38	38	5.5%
Speeding	98	68	77	72	67	10.3%
Unbelted	14	12	23	16	23	2.4%

Crashes by Involvement	2019	2020	2021	2022	2023	Percent of Crashes 2019 - 2023
Secondary	4	3	8	4	6	0.7%

High Frequency Intersection Crash Rankings By Fatalities + Serious Injuries

Local Rank	County Rank	Region Rank	Intersection	Jurisdiction	Annual Avg 2019-2023
1	30	32	Ecorse Rd @ Haggerty Rd	County	1.2
2	108	151	Denton Rd @ Ecorse Rd	County	0.8
2	108	151	Huron River Dr W @ Rawsonville Rd	County	0.8
4	188	293	Belleville Rd @ Interstate 94 Service Dr N	County	0.6
4	188	293	Belleville Rd @ Yost Rd	County	0.6
4	188	293	Ecorse Rd @ Beck Rd		0.6
4	188	293	↳ Beck Rd @ Ecorse Rd	County	0.6
4	188	293	↳ Beck Rd @ Ecorse Rd	County	0
7	446	730	Belleville Rd @ Interstate 94 Service Dr S	County	0.4
7	446	730	Ecorse Rd @ Hannan Rd	County	0.4
7	446	730	Haggerty Rd @ Bemis Rd		0.4
7	446	730	↳ Haggerty Rd @ Bemis Rd	County	0.2
7	446	730	↳ Haggerty Rd @ South Metro Pkwy	County	0.2
7	446	730	Haggerty Rd @ Interstate 94 Service Dr S	County	0.4
7	446	730	Haggerty Rd @ McBride Ave	County	0.4
7	446	730	Haggerty Rd @ Tyler Rd	County	0.4
7	446	730	Interstate 94 Service Dr N @ Quirk Rd	County	0.4
7	446	730	Rawsonville Rd @ Bemis Rd	County	0.4
7	446	730	Rawsonville Rd @ Bog Rd	County	0.4
7	446	730	Rawsonville Rd @ Martz Rd		0.4
7	446	730	↳ Rawsonville Rd @ Martz Rd	County	0.4

Local Rank	County Rank	Region Rank	Intersection	Jurisdiction	Annual Avg 2019-2023
7	446	730	↳ Rawsonville Rd @ Martz Rd	County	0

Note: Intersections are ranked by the number of fatalities and serious injuries as the result of a crash, and does not take into account traffic volume. Crashes reported occurred within 150 feet of the intersection.

Source: **Michigan Department of State Police with the Criminal Justice Information Center** and **SEMCOG**

High Frequency Road Segment Crash Rankings By Fatalities + Serious Injuries

Local Rank	County Rank	Region Rank	Segment	From Road - To Road	Jurisdiction	Annual Avg 2019-2023
1	7	7	Rawsonville Rd	Bemis Rd - Textile Rd E	County	2.8
2	87	146	Haggerty Rd	Bemis Rd - Savage Rd	County	1.2
2	87	146	Ecorse Rd	Michigan Ave - Denton Rd	County	1.2
2	87	146	E I 94	Rawsonville/E I 94 Ramp - E I 94/Belleville Ramp	State	1.2
5	133	240	Ecorse Rd	Denton Rd - Beck Rd	County	1
5	133	240	Belleville Rd	Tyler Rd - Ecorse Rd	County	1
5	133	240	Haggerty Rd	Tyler Rd - Ecorse Rd	County	1
8	207	395	Rawsonville Rd	Textile Rd E - Grove St N	County	0.8
8	207	395	W I 94	W I 94/Belleville Ramp - S Haggerty/W I 94 Ramp	State	0.8
10	336	683	Interstate 94 Service Dr N	Belleville Rd - Haggerty Rd	County	0.6
10	336	683	S I 275	Hannan Rd - Tyler Rd	State	0.6
10	336	683	Haggerty Rd	Interstate 94 Service Dr N - Tyler Rd	County	0.6
10	336	683	Interstate 94 Service Dr S	Rawsonville Rd - Denton Rd	County	0.6
10	336	683	Belleville Rd	Van Born Rd - Michigan Ave	County	0.6
10	336	683	W I 94	W I 94/Rawsonville Ramp - S Belleville/W I 94 Ramp	State	0.6

Note: Segments are ranked by the number of fatalities and serious injuries as the result of a crash, and does not take into account traffic volume.

Environment

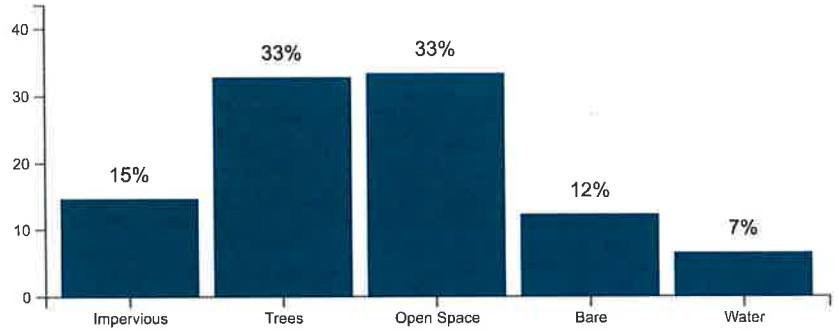
2020 Land Use

Parcel Land Use	Acres 2015	Acres 2020	Change 2015-2020	Pct Change 2015-2020
Single-Family Residential	3,357.6	3,390.6	32.9	1%
Attached Condo Housing	21.9	22.6	0.7	3%
Multi-Family Housing	299.9	299.9	0	0%
Mobile Home	304.2	304.2	0	0%
Agricultural/Rural Residential	5,715	5,435.8	-279.2	-4.9%
Mixed Use	216.2	205.5	-10.8	-5%
Retail	231.4	230	-1.4	-0.6%
Office	260.9	261.8	1	0.4%
Hospitality	138.7	140	1.3	1%
Medical	10.8	10.8	0	0%
Institutional	561.9	529.8	-32.1	-5.7%
Industrial	807.3	983.9	176.6	21.9%
Recreational/Open Space	1,218.7	1,218.7	0	0%
Cemetery	28.5	28.5	0	0%
Golf Course	262.5	262.5	0	0%
Parking	11.4	11.4	0	0%
Extractive	0	0	0	0%
TCU	3,006.4	3,007.8	1.4	0%
Vacant	3,304	3,413.5	109.5	3.3%
Water	1,560.5	1,560.5	0	0%
Not Parceled	1,779.9	1,779.9	0	0%
Total	23,097.6	23,097.6	0	0%

1. **Agricultural / Rural Res** includes any residential parcel containing 1 or more homes where the parcel is 3 acres or larger.
2. **Mixed Use** includes those parcels containing buildings with Hospitality, Retail, or Office square footage and housing units.

3. **Not Parceled** includes all areas within a community that are not covered by a parcel legal description.
4. Parcels that do not have a structure assigned to the parcel are considered vacant unless otherwise indicated, even if the parcel is part of a larger development such as a factory, school, or other developed series of lots.

2020 Land Cover



Source Data

SEMCOG - Detailed Data

Type	Description	Acres	Percent
Impervious	buildings, roads, driveways, parking lots	3,410.1	14.8%
Trees	woody vegetation, trees	7,589.4	32.9%
Open Space	agricultural fields, grasslands, turfgrass	7,723.9	33.5%
Bare	soil, aggregate piles, unplanted fields	2,850.1	12.3%
Water	rivers, lakes, drains, ponds	1,513.3	6.6%
Total Acres		23,086.9	

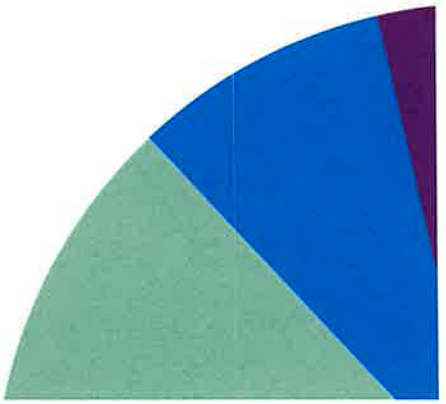
SEMCOG 2022 Tree Canopy

Type	Acres	Percent
Tree Canopy	8,467.9	36.7%

Tree canopy is the layer of tree leaves, needles, branches, and stems that provide tree coverage of the ground, viewed from an aerial perspective.

2019 Greenhouse Gas Emissions

	CO2e (MT)	Percentage of Total
Residential Energy Use	129,533	21.32%
Commercial Energy Use	78,743.6	12.96%
Industrial Energy Use	141,102	23.22%
Industrial Processes	50,837.9	8.37%
Transportation	185,720.2	30.57%
Solid Waste	20,702.8	3.41%
Water and Wastewater Treatment	717.5	0.12%
Agriculture, Forestry, and Land Use	232.2	0.04%
Total	607,589.3	100%



Source: SEMCOG, Local **Gas Emissions Inventory Summary**

Attachment E. Identification of Endangered and Threatened Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To:
Project code: 2025-0086857
Project Name: Wayne Disposal Site

04/22/2025 21:02:44 UTC

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Record of project representative's no effect determination for 'Wayne Disposal Site'

Dear Amy Towell:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 22, 2025, for 'Wayne Disposal Site' (here forward, Project). This project has been assigned Project Code 2025-0086857 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Eastern Massasauga (=rattlesnake) *Sistrurus catenatus* Threatened
- Eastern Prairie Fringed Orchid *Platanthera leucophaea* Threatened
- Indiana Bat *Myotis sodalis* Endangered
- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Rufa Red Knot *Calidris canutus rufa* Threatened
- Snuffbox Mussel *Epioblasma triquetra* Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the Michigan Ecological Services Field Office and reference Project Code 2025-0086857 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Wayne Disposal Site

2. Description

The following description was provided for the project 'Wayne Disposal Site':

> The site (Wayne Disposal, owned by Republic Services) is an existing hazardous waste facility that has been licensed by the State of Michigan and has Federal Approval for PCBs under TSCA. An Environmental Assessment is required by MI PA 452 Part 111 for application of re-licensing the facility.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.226165699999996,-83.51617005537693,14z

DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

9. Will the action result in effects to a culvert or tunnel at any time of year?

   No

10. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

11. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

12. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

13. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

14. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

15. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

16. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

17. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

18. Will the proposed action involve blasting or drilling?

    No

19. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

20. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

21. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

22. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

23. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

24. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

25. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

26. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Automatically answered
    No

27. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered

    No

28. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

29. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

30. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

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